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39

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Build a realistic aquatic landscape

- In-depth interview

Projection mapping

How one studio created an immersive movie experience like no other

- 30-minute quick fix

Mudbox lighting

Play with HDRIs, filters and depth of field to preview external render results

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ISSUE 39

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modo® image by Teodoru Badiu www.theodoru.com
03
Meet modo.
Luxology®

Ovidiu Voica

Website www.voicaovidiu.com
Software used ZBrush, V-Ray, Photoshop
Country Romania
Year it was made 2012

Odin is the formidable star of our cover this issue. Ovidiu Voica is the artist responsible for this impressive, sculpt-like piece of artwork. It's a beautiful blend of artistic talent, ancient Norse mythology and the powers of modern technology. What's more, you can find out how it was made on page 56.

> "Overall, this project was a great test of my speed-sculpting skills; however, it has also inspired me to model in clay more often now"
>
> **Ovidiu Voica** reflects on his project *Odin*

Create the cover!
Turn to page 56 for the tutorial!

WorldMags.net

Welcome

to the magazine and 116 pages of amazing 3D

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5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

Hello and welcome to 3D Artist! We've got everything from Vikings to packaging design for you this month.

Highlights for me have to include the arch-vis tutorial from Pawel Podwojewski over on page 46 and the idea-generation feature on page 30. I love to read how artists continue to come up with fresh ideas and solutions to creative challenges... their tips are incredibly helpful too.

Something else I wanted to mention was our letters page – it now includes snippets from our social-networking channels. You might even spot your own name in among our Top Tweets. If not, be sure to get involved in discussions for next month.

Enjoy the issue!

Sarah Slee, Editor

This issue's team of expert artists...

Ovidiu Voica

This Romanian artist's digital sculpt is the fabulous cover star for this issue. Find out exactly how it's made on page 56

Pawel Podwojewski

There's no doubt that Pawel's image is impressive. What's more, he explains how he did it. Nice guy, eh?

Lech Sokolowski

Lech's been causing chaos and destruction in the Workshop this issue. Read how he picked up the pieces in the Back to Basics

Gene Dupont

Learn why 3D packaging design is becoming the medium of choice for companies, plus how to make your own

Josh Kitney

Realism is difficult to master, but luckily Josh's modo tips for natural-looking grass will ensure a bountiful crop in no time

Wayne Robson

The Mudbox master is back to share his knowledge. Find out about lighting and depth of field in his step-by-step guide

Luiz Alves

Brazil-based Luiz blended man and beast for his piece *Fauno*. It proved a tricky task, but he shares his secrets

Gavin Goulden

Dragons need workable wings: fact. Thankfully, Gav is here to help with your rigging woes in this six-step sesh

Richard Yot

Richard's back once more – this time he's talking textures. Natural media ones, in fact. Flick to the Q&A section for more

Conrad Allan

Conrad's all about the underwater Vue this issue. Learn how to create a subsurface terrain with his 17-step tutorial

Ross Board

This month London artist Ross has sniffing out the latest industry news and putting a new 3D mouse to the test

Paul Champion

NCCA lecturer Paul has been busy putting products through their paces. Namely SprayTrace and some ZBrush training

Sign up, share your art and chat to other artists at www.3dartistonline.com

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3DArtist

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Image courtesy of Chris O'Riley

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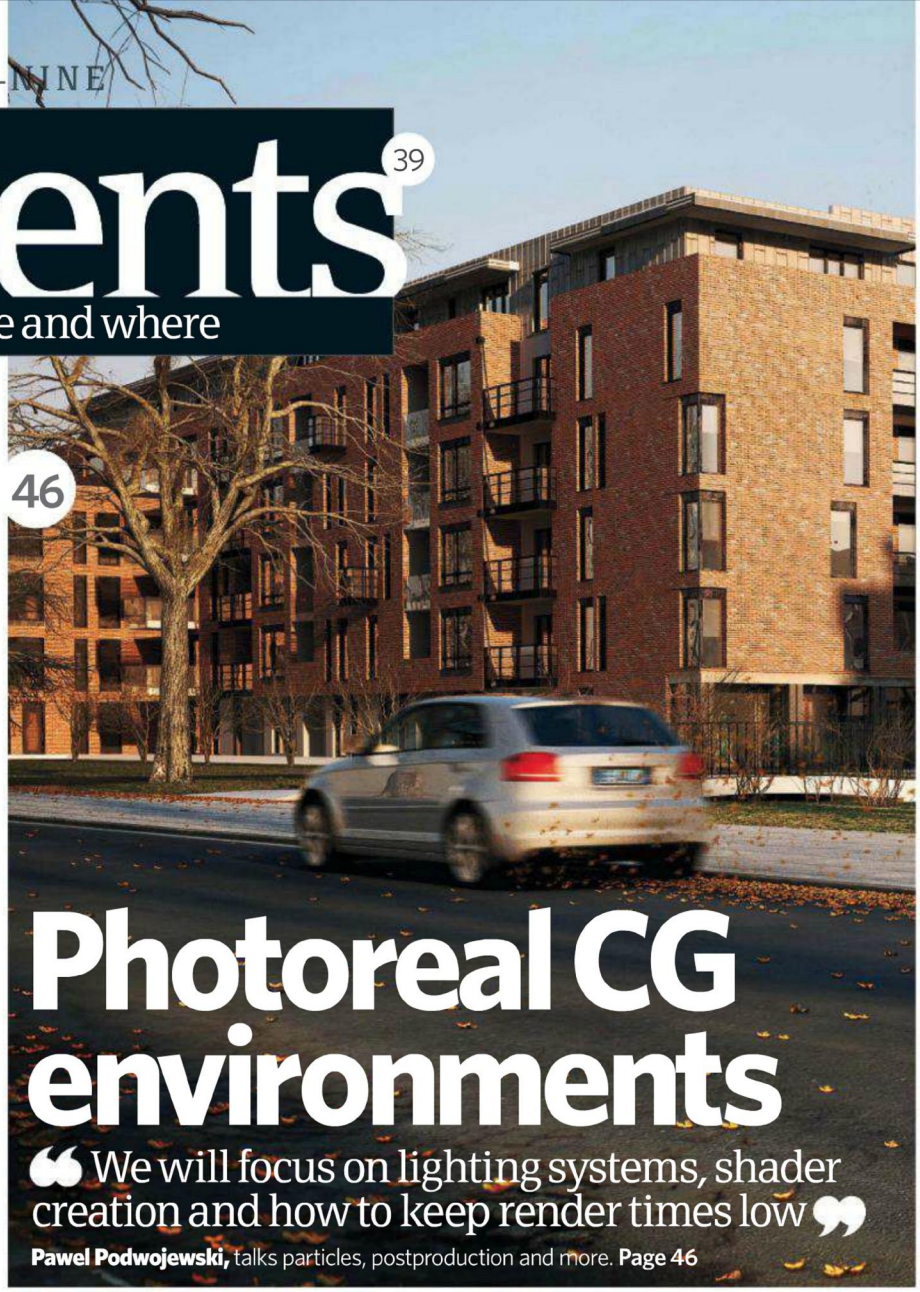

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Photoreal CG environments

"We will focus on lighting systems, shader creation and how to keep render times low"

Pawel Podwojewski, talks particles, postproduction and more. **Page 46**

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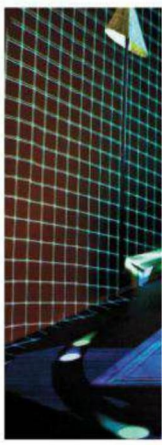

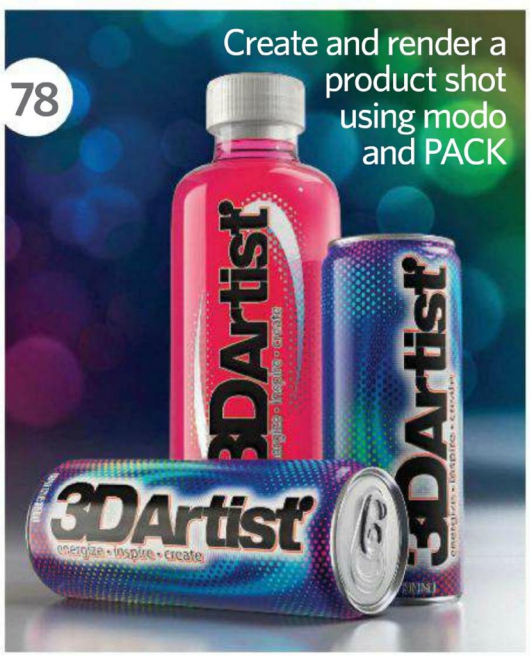

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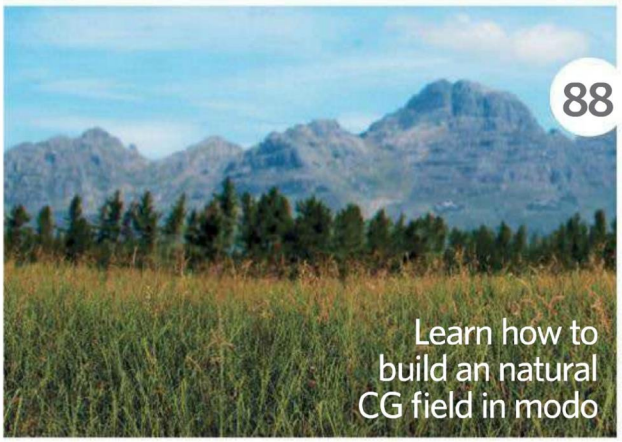
MLF pushes the boundaries of project mapping to new levels



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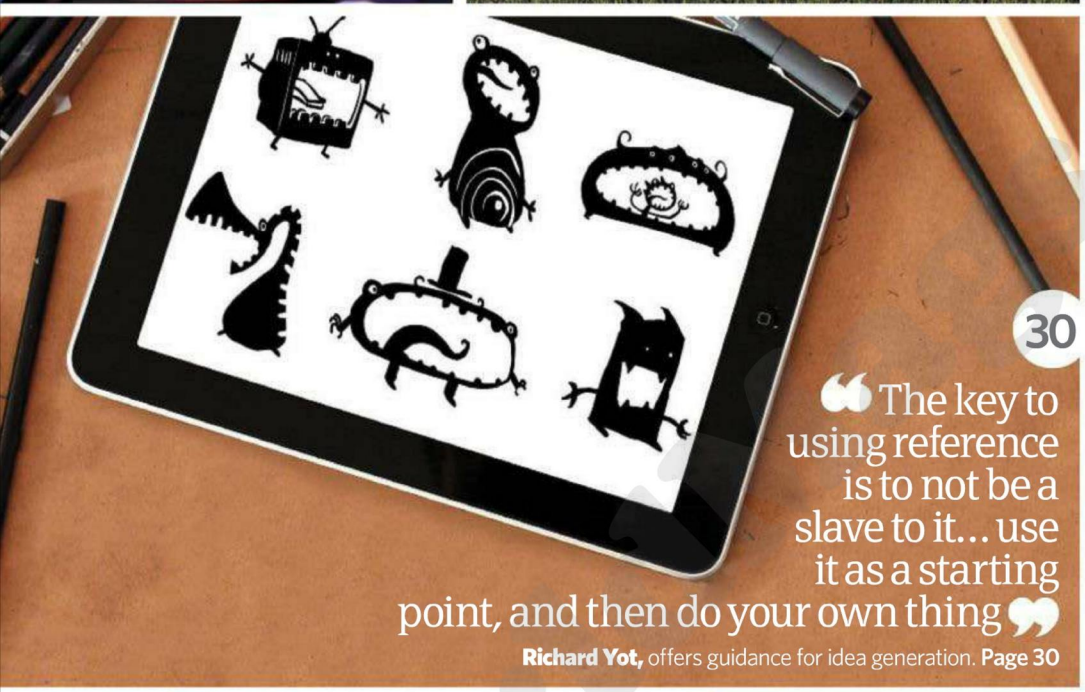

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> The key to using reference is to not be a slave to it... use it as a starting point, and then do your own thing

Richard Yot, offers guidance for idea generation. **Page 30**

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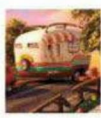

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- Full version of Vue 9
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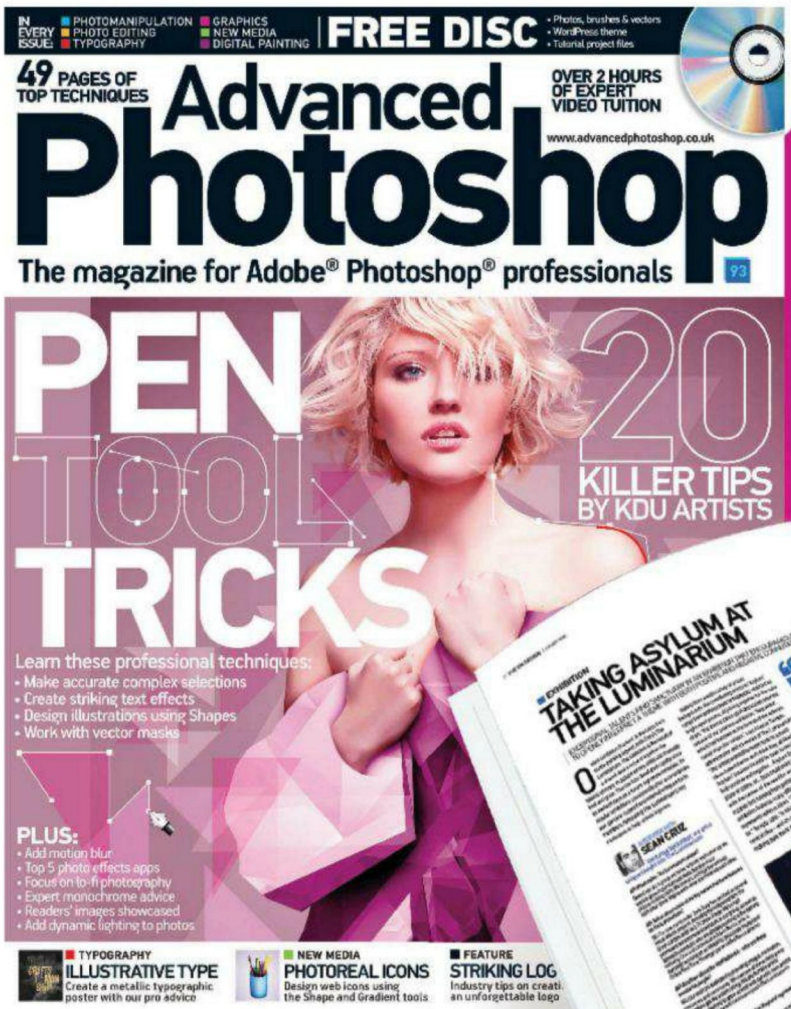
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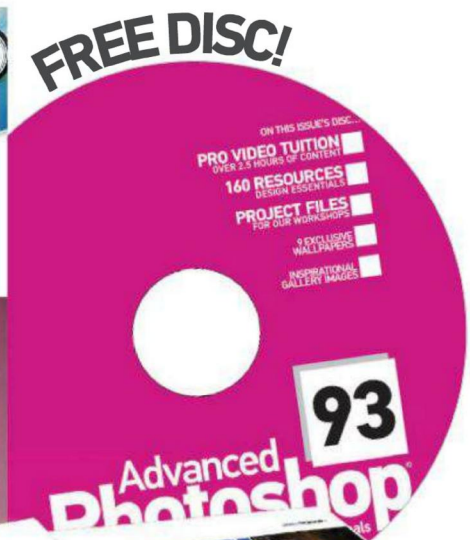

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WELCOME TO THE GALLERY

Nine pages of great artwork from the 3D community

Images we love!

Artist info

Nicola Pireddu

Personal portfolio site www.kinopatia.com

Country Italy

Software used CINEMA 4D, BodyPaint, Photoshop

Work in progress...

"I started this image from a sketch that I made for a short movie, but he will never be used for that. I thought it was so funny I decided to use it for a personal work"

Nicola Pireddu, *Zanzi-BAR*, 2011

Featured artists

Nicola Pireddu

We absolutely love this adorable li'l creation. Great postproduction too

David Arcanuthurry

Proof that smoking stunts your growth and gnomes really do live in the woodland

Simon Williamson

Is it a bird, is it a plane? Who the heck cares?! It's glossy and rather awesome

Victoria Passariello

Victoria's robot is a hulking mechanical beast with brutishly brilliant textures

Francis-Xavier Martins

This fella is a true gentleman. All he needs is a monocle and he's good to go

Gustavo Rios de Oliveira

Ahoy! Here be an alluring pirate wench, with great textures and materials

Cézar Duarte Brandão

A stunning sculpt with superb muted tones and an excellent expression

Anatoliy Sidorov

You can never have too many robots: fact. Anatoliy's cyborg means business

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Artist info

David Arcanuthurry

Personal portfolio site
www.paradigmatik.com

Country France

Software used
3ds Max, ZBrush, Photoshop, Magic Bullet Looks

Work in progress...

The team Loves

This little guy is so believable! I love how his skin is the same tone as the mushroom... I just hope he doesn't smoke too much of that pipe, with those teeny lungs!

Lynette News Editor

I've created this image to validate a workflow for a future collaboration with a good friend, Nicolas Reytet... I wanted to create an image closer to reality, as if I found this little guy in a corner of forest

David Arcanuthurry, *La Pause*, 2011

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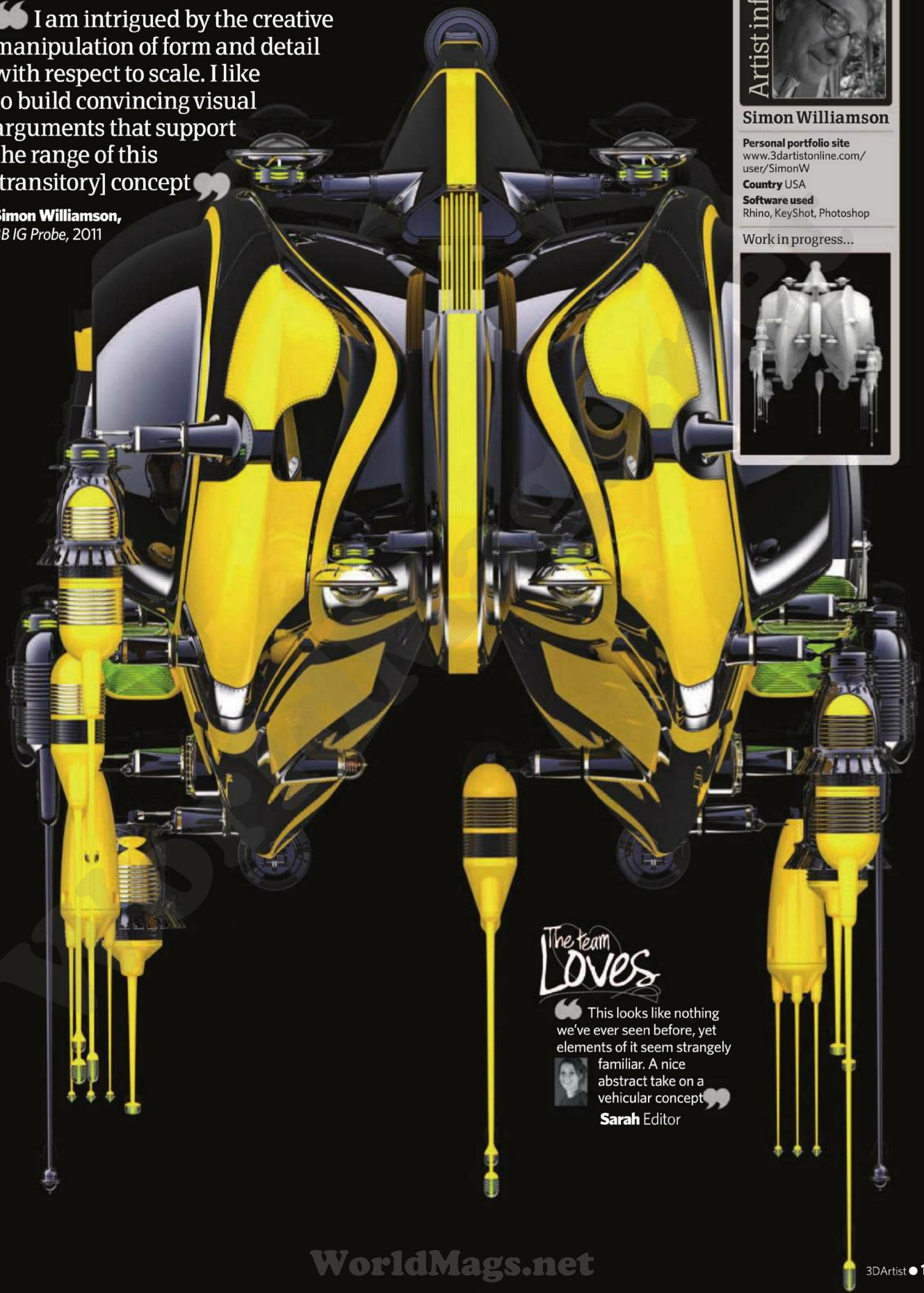
> I am intrigued by the creative manipulation of form and detail with respect to scale. I like to build convincing visual arguments that support the range of this [transitory] concept

Simon Williamson, *BB IG Probe,* 2011



Artist info

Simon Williamson

Personal portfolio site
www.3dartistonline.com/user/SimonW

Country USA

Software used
Rhino, KeyShot, Photoshop

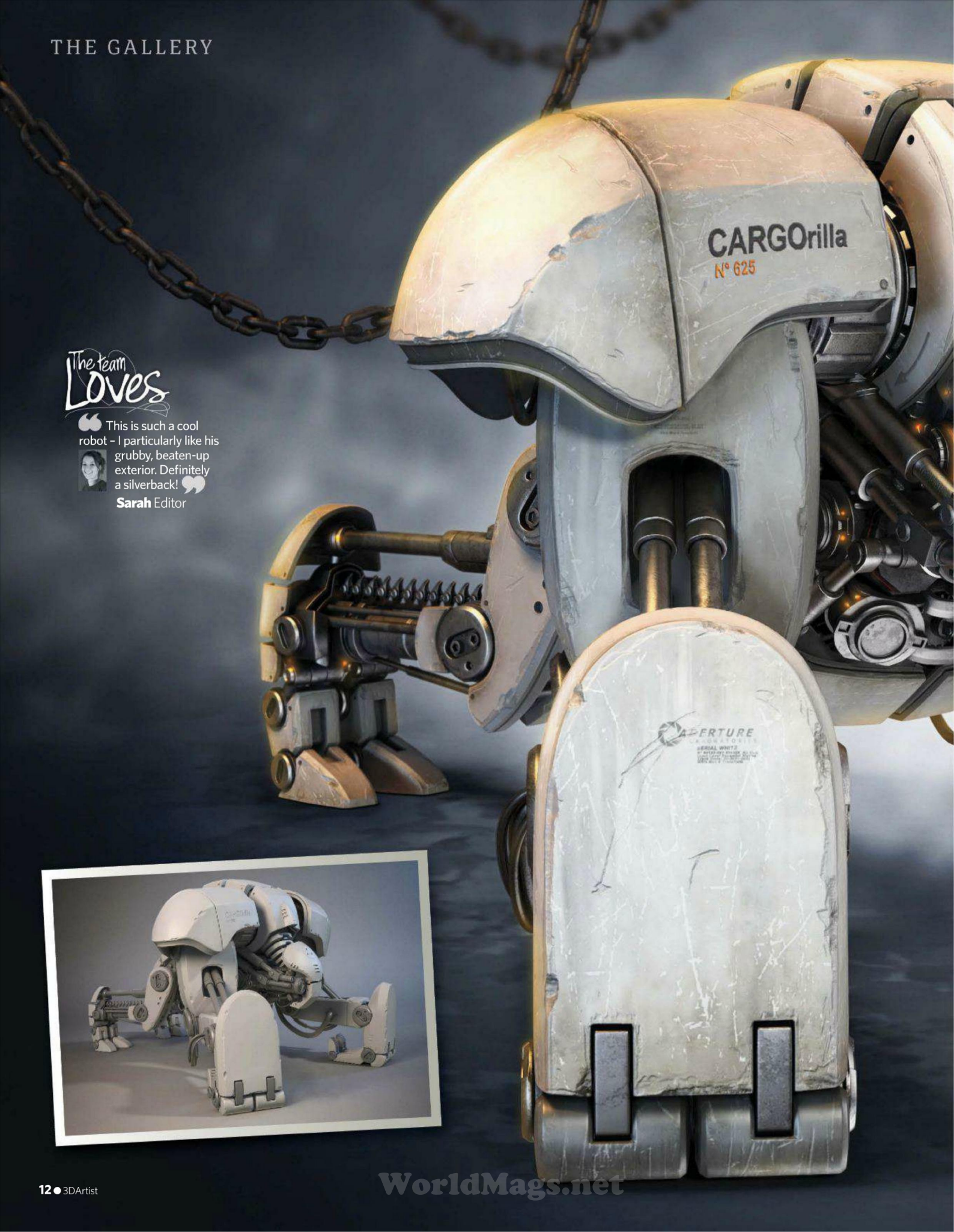
Work in progress...

The team Loves

> This looks like nothing we've ever seen before, yet elements of it seem strangely familiar. A nice abstract take on a vehicular concept

Sarah Editor

WorldMags.net



The team Loves

This is such a cool robot – I particularly like his grubby, beaten-up exterior. Definitely a silverback!

Sarah Editor

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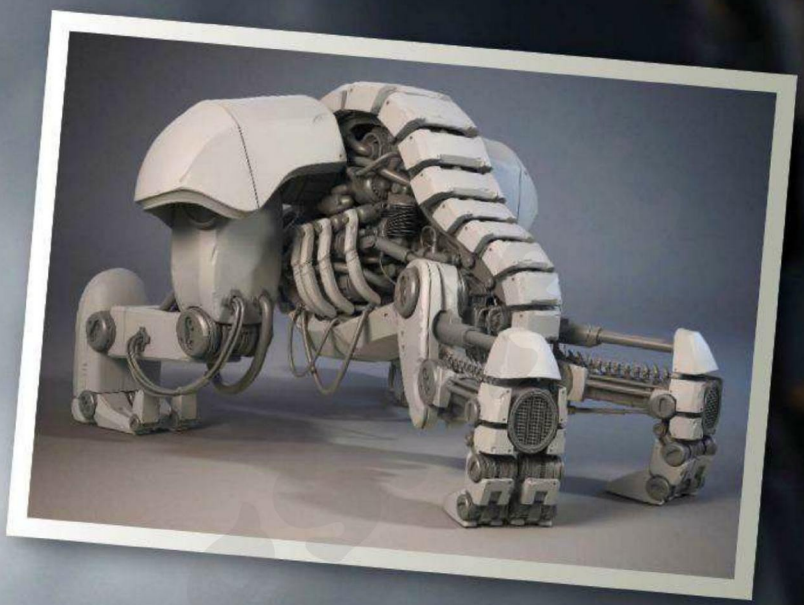

Artist info

Victoria Passariello

Personal portfolio site
www.vitrux3d.com

Country Venezuela

Software used
3ds Max, V-Ray, ZBrush, Photoshop

Original concept art:
Rune Holst Månsson
www.maans.dk

Lighting:
Eduardo Balestrini
http://vitrux.cghub.com

"I made *CARGOrilla* as a personal project. I am a born lover of robots and when I saw Rune's art, I instantly wanted to bring it to life in 3D" **Victoria Passariello,** *CARGOrilla,* 2011

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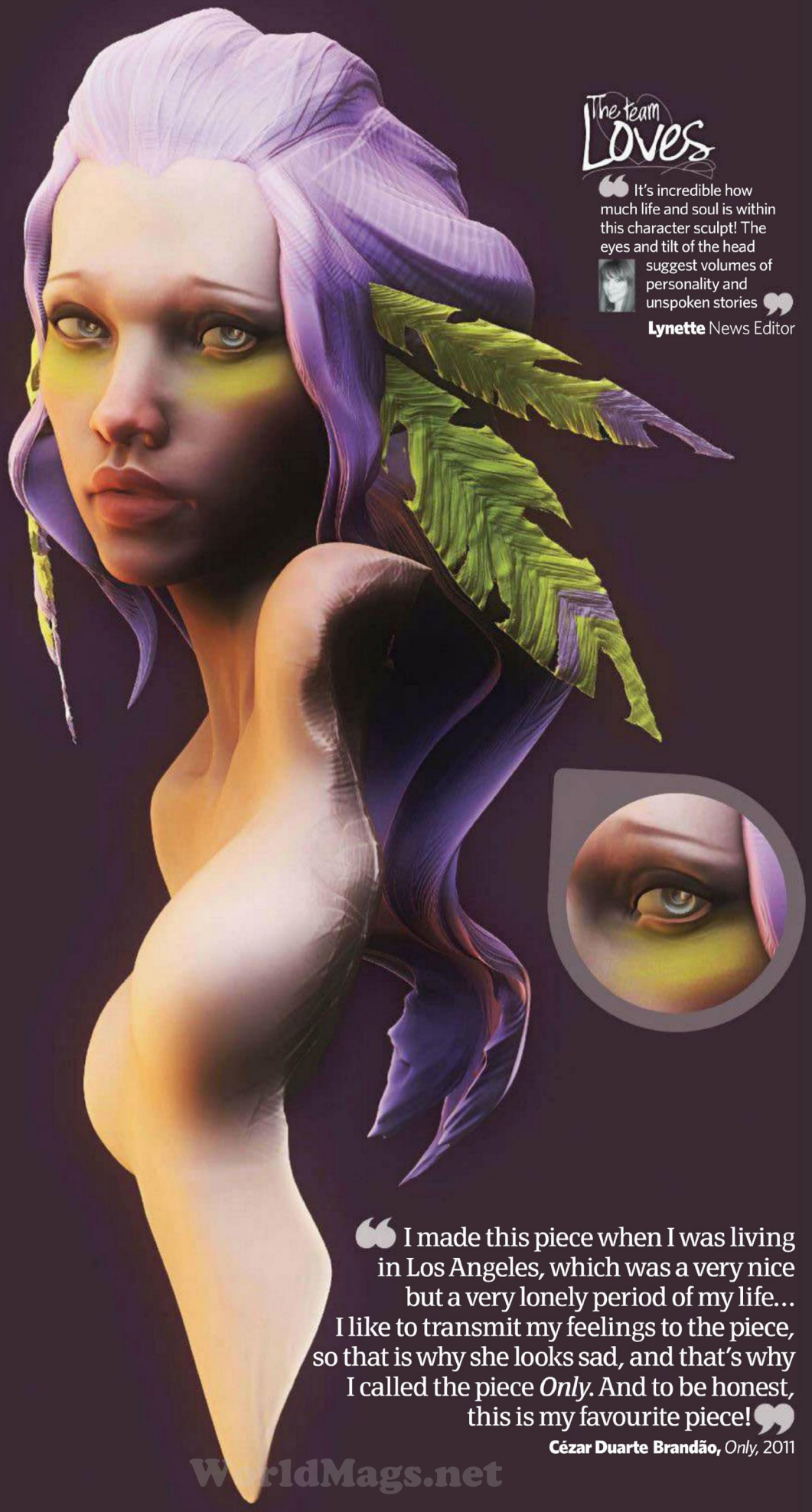

The team Loves

"It's incredible how much life and soul is within this character sculpt! The eyes and tilt of the head suggest volumes of personality and unspoken stories"

Lynette News Editor

"I made this piece when I was living in Los Angeles, which was a very nice but a very lonely period of my life... I like to transmit my feelings to the piece, so that is why she looks sad, and that's why I called the piece *Only*. And to be honest, this is my favourite piece!"

Cézar Duarte Brandão, *Only,* 2011

Artist info

Cézar Duarte Brandão

Personal portfolio site
www.branduarte.blogspot.com

Country Brazil

Software used
ZBrush, Photoshop

Work in progress...

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The team Loves

"While the composition is simple, the character makes a bold statement, holding the frame with his curious stare. The different surfaces also work really nicely together, leading the eye to explore the details"

Lynette News Editor

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"I wanted to create a quirky character, trying out some techniques I had learnt in ZBrush. I found some great inspiration online and finally settled on a sketch by the really cool French artist, Mathieu Leyssenne – AKA Ani. I showed him the finished model and he liked it, which is nice!"

Francis-Xavier Martins, *Top Hat Gent,* 2011

Artist info

Francis-Xavier Martins

Personal portfolio site
www.polyjunky.blogspot.com
Country UK
Software used
ZBrush, Photoshop

Work in progress...

© Original concept by Mathieu Leyssenne, www.aniii.com

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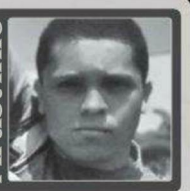
The team Loves

The wonderful materials and textures set this temptress perfectly at home on the high seas. While her pose is already alluring, her expression speaks even louder!

Lynette News Editor

Artist info



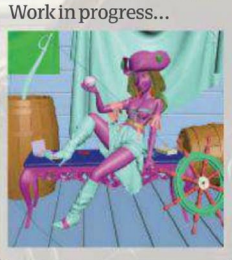
Gustavo Rios de Oliveira

Personal portfolio site [none]

Country Brazil

Software used 3ds Max, Maya, ZBrush, mental ray

Work in progress...



"Working full-time in a studio, I ended up [going] for a long time without having created a cool personal image. When I had some free time I thought of making something simple, but [still] different and interesting"

Gustavo Rios de Oliveira, *Charming Pirate*, 2011

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> If I have free time, I normally use it to participate in different competitions, or to practise something in 3D. On this occasion my aim was to create a realistic robot bust model, but it ended up evolving into a full-sized android

Anatoliy Sidorov,
major_RoboTotaRTs12, 2011

The team loves

> A great-looking female robot – her pose and figure possess the characteristics of a human

Sarah Editor

Artist info

Anatoliy Sidorov

Personal portfolio site
http://sanat49.cgsociety.org
Country Russia
Software used
Maya, mental ray, Photoshop, ZBrush, 3D-Coat

Work in progress...

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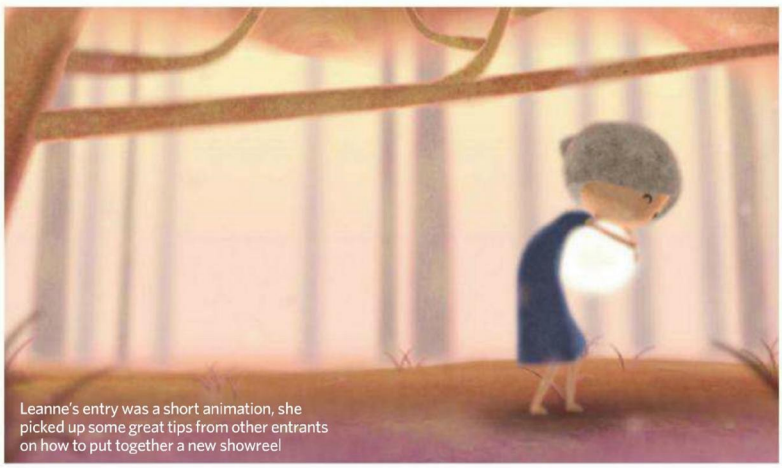
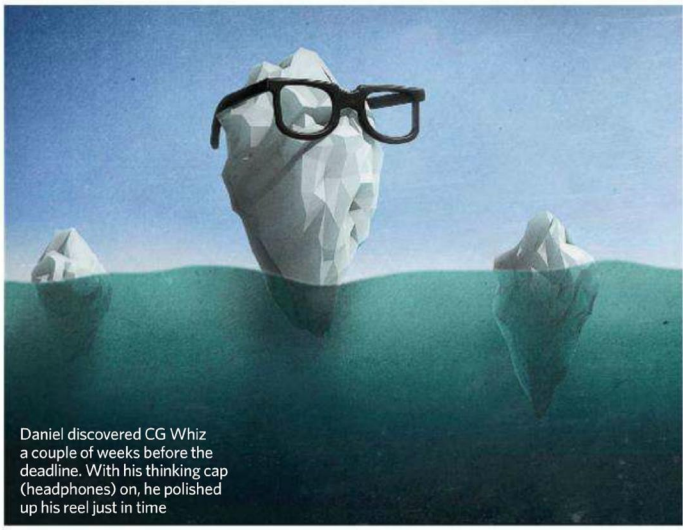
Winning showreels

Escape Studios recognises fresh talent with the CG Whiz 2011 competition



Leanne's entry was a short animation, she picked up some great tips from other entrants on how to put together a new showreel



Daniel discovered CG Whiz a couple of weeks before the deadline. With his thinking cap (headphones) on, he polished up his reel just in time

Yunsung was strongly encouraged by his friends to submit his showreel to CG Whiz 2011, and he's sure glad he did!

As 2011 drew to a close, so too did the prestigious CG Whiz competition, bestowing its third annual winner with the prize of a life-changing work placement at The Mill visual effects house.

Daniel Danielsson was the star of the awards presentation evening, flying in from Sweden to the crowded London Escape Studios headquarters to await the announcement of the prize. Daniel was the deserving winner in the Amateur category, with a showreel that shone with impressive self-taught skills. With a work placement at a globally renowned VFX house safe in his back pocket, he's excited about things to come. "Right now, my future looks so bright it's blinding me, so it's hard to see exactly where I'm going," Daniel says. "Of course, I have hopes of staying with The Mill after my placement is over – something I hear is not uncommon for CG Whiz winners. If I prove myself worthy enough, that is!"

For the Escape Studios judges, winning showreels in the Amateur category had to show creative thinking – clichés are a big no-no. Second prize winner Leanne Towers offered exactly what the judges ordered with her elegant showreel featuring a unique style. The real flair was a result of Leanne's creative use of 3D, far from a full-on VFX fest, which was commendably rewarded with a 12-month online VFX course from Escape Studios. "Escape Studios [is] very well established, so to be awarded a prize from them is a great boost to my resume," Leanne says of her success.

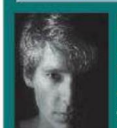
With a wide range of showreels submitted this year, from the very technical to the creative and esoteric, choosing the winners was a daunting task. The quality of submissions really stepped up another gear, so for the first time ever CG Whiz also introduced the Young Professional award to recognise a great generalist with impressive talent across the board. Yunsung Cho topped the category with a showcase of skills in everything from fluids to problem solving, fitting the bill perfectly. "I've always been curious how the actual experts would evaluate my works," Yunsung says. "Having the opportunity for my works to be viewed by the experts at The Mill itself is very meaningful to me." Check out the CG Whiz Reveal Event footage on Escape Studios' YouTube channel: www.youtube.com/user/escapestudios/featured.

> "My future looks so bright it's blinding me"
>
> **Daniel Danielsson,** CG Whiz 2011 amateur winner

3DArtist online.com

Had any competition triumphs? Want more advice on how and what to enter? Discuss all this and more with your fellow **3D Artist** readers on the forums at: **www.3dartistonline.com/forum**

Why submit?



Daniel Danielsson reveals what enticed him to enter CG Whiz 2011

"What I really wanted to find out was what the competition in the business looked like, and how I measured up in comparison," Daniel says. "Of course, the prizes were very enticing, but quite frankly I didn't expect to get very far in the competition. But I thought it couldn't hurt to enter anyway, right?"

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Users' choice awards

In a CG Whiz first, this year saw the public also voting for their favourites

First prize: Jorge Barros

Portuguese masters degree student Jorge Barros was intrigued by a competition where students, graduates and hobbyists not already working in the entertainment industry could take a place in the spotlight. "I knew that my submission wasn't at the same quality level as many others, so I did everything I could to at least grab the Users' Choice Award," Jorge says. "In the run for this award, there were around six contenders who always kept the pace with me."

Second prize: Amila C Kumarasinghe

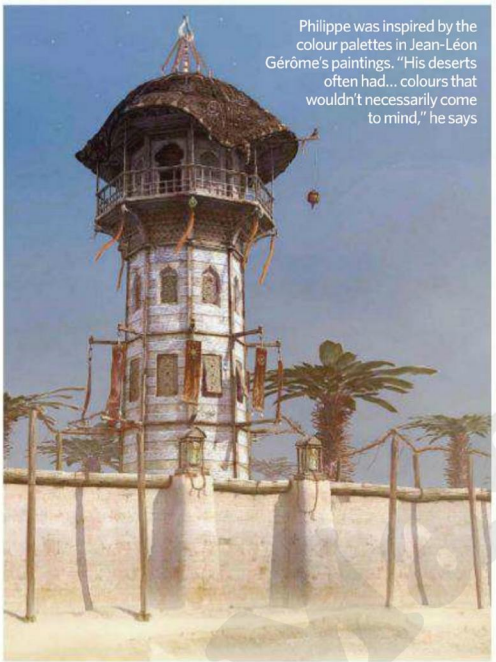
Scooping second place was Amila from Sri Lanka, who entered to show off his killer VFX skills to new audiences. "There are so many industry artists growing day by day," Amila says, "so this opportunity is great for them to see what place they are in and how the audience and judges treat them. When looking at other reels, we learn lots of things – every person is different from one another, and the talent is different too. So CG Whiz is a great start!"

Masterpiece

Towering inspiration

Philippe Ringuette-Angrignon demonstrates his pro skills in 3ds Max and Photoshop

Philippe Ringuette-Angrignon www.phil-ra.cghub.com



Philippe was inspired by the colour palettes in Jean-Léon Gérôme's paintings. "His deserts often had... colours that wouldn't necessarily come to mind," he says

Philippe offers insight into his next project

"It's an industrial interior with a slight twist, but my objective is to use a perspective with stronger depth and potentially have some characters to help establish scale; mainly things I haven't explored before," Philippe says. "Since I produce few images, I feel each one must clearly surpass the previous one in areas I feel less comfortable."

When Philippe discovers inspirational references, he'll enjoy nothing more than scribbling over them to explore ideas and create something new and exciting. Happy with a design, he'll model it, set up a nice lighting scenario and apply some basic textures. "I don't bother with complex UV mapping, small details or advanced lighting," Philippe says. "Once the image is around 75 per cent complete, I render it at a high resolution then finish the job in 2D by painting over the image, overlaying textures and so on. I use 3D or 2D, based on how comfortable I am with a given aspect of the image."

Although there are no characters in the scene, Philippe's piece still suggests both life and movement. He explains: "I have a tendency to avoid putting noticeable characters in my images because I feel that they easily detract from the rest of the image. In this case, it was important to counter this with a sense of motion, to give a bit of life to an otherwise dry environment that could appear static."

Blog watch

A guide to inspiring and informative blogs!

I Sculpt Stuff

The latest from anatomy master and ZBrushWorkshops founder, Ryan Kingslien

Sculptor and teacher Ryan Kingslien is all for sharing the power of his longstanding anatomy knowledge with those eager to master the art of sculpting. After a significant stint working at Pixologic, putting the Rake brush into ZBrush, Ryan now teaches through his website ZBrushWorkshops, with the new I Sculpt Stuff blog his latest information overflow. Here you'll discover helpful free video lessons, inspirational finds, traditional clay demos and personal entries. Be sure to hit this frequently for an anatomy refresh!

www.isculptstuff.com

3D Sketchbook

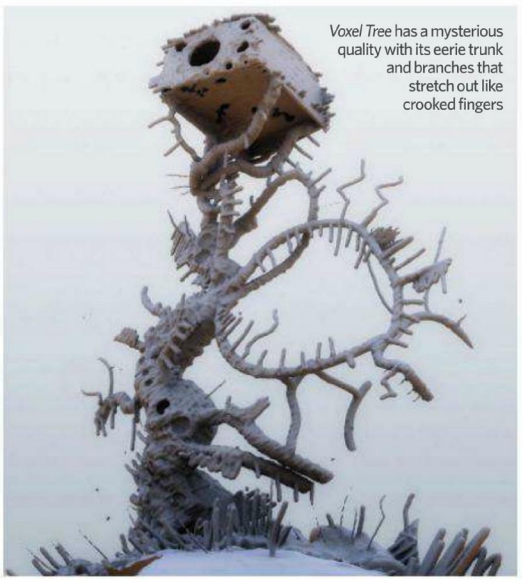
Sketching in 3D-Coat

Environment artist Fuad Ghaderi reveals how 3D-Coat enables him to quickly explore new ideas

Fuad Ghaderi www.fuad.cghub.com

Working as a 3D environment artist in Iran for the past three years, Fuad was astounded by the capabilities of digital sculpting in packages like ZBrush when he first entered the games industry. Now he's still revelling in frequent opportunities to bring his ideas to life quickly and easily, and is enjoying the freedom of digital sculpting to explore new and more daring concepts.

Voxel Tree was created entirely in 3D-Coat, making great use of the very natural voxel-sculpting tools, which enable artists to sculpt without topological constraints. "It's very fast and has various abilities, like voxel [sculpting], unwrap, texture painting and retopology," Fuad explains. "It's practical to make your dream ideas rapidly and very easily."



Voxel Tree has a mysterious quality with its eerie trunk and branches that stretch out like crooked fingers

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Free 3D Resources

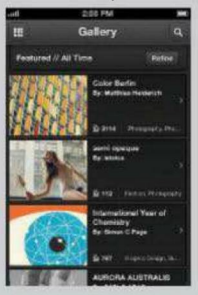
Pocket portfolios

A free app from Behance to sync your portfolio and explore projects on your mobile

Creative Portfolios & Galleries app

Web: www.tinyurl.com/behance-app

An official iPhone app has been launched by Behance to give its users the opportunity to showcase their portfolios on their mobiles



– great for when you're without a Wi-Fi signal! Users get access to all the beautiful fashion, typography, photography and digital art projects that we've come to expect from the explosive creative network, while being able to check into their profile, connections and portfolio stats on the move. Download the app for free from the iTunes Store and enjoy the benefits of having your portfolio in your pocket!

behind the scenes

Swing of Change

Talented students at ESMA Montpellier tackle the delicate subject of racism in this impressive short, created in their third year

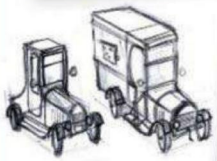
www.swing-of-change.com

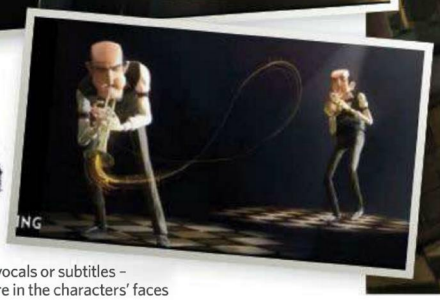
Harmony Bouchard, Andy Le Cocq, Joakim Riedinger and Raphael Cenzi worked with musicians, dancers and choreographers to create a technical and artistic feat for their graduation project.

Harry is the hero character, and a proud man. Skilled and stubborn, we watch as he masterfully shaves a white client in his beautifully rendered barbershop. A sign reading "white only" makes a powerful statement on his window, and when his beloved gramophone breaks he finds himself angrily swiping a trumpet from a black jazz busker outside in a foul temper. With Harry's curiosity getting the better of him, we soon discover that this is no ordinary trumpet, and Harry is forcefully pulled around the shop by the tuneful instrument. As his hips start to loosen, his stiff posture giving way to the soulful tune, the shop transforms into a smoky club scene with spotlights and glowing ghost trails. Eventually Harry stops, looking at himself curiously in the mirror, before the final scene sees him happily shaving a black client. The faint markings of "white only" are all that's left of his racist attitude.

Adding Maya 2011, Shave and a Haircut, Photoshop CS5, Fusion 6, MARI and After Effects CS5 to their pencils and crayons, the determined team undertook a thorough research process to work out the best solutions for the fur, stylisation, music and the script. The film is available online and is currently being submitted to various film festivals around the world. To see for yourself visit **www.swing-of-change.com**.

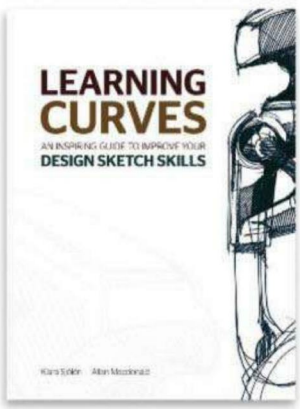
SEE YOUR WORK HERE!
3DArtist Community
Contact **Lynette** with your latest news at **lynette.clee@imagine-publishing.co.uk**





Beautiful camera angles and perspectives help tell a story without vocals or subtitles – all the drama is right there in the characters' faces

'Swing of Change' is filled with grandeur, authentic details, lots of vintage touches and treasures to be discovered along the way



Win signed copies of Learning Curves!

Become a better sketcher with this excellent book from Designer Techniques

To tie in with our feature on sketchbooks this issue (check out page 30), we have three copies of the fantastic *Learning Curves* up for grabs!

You may remember we reviewed *Learning Curves* by Allan Macdonald and Klara Sjölén in issue 35, giving it 9/10 for its engaging delivery and all-round awesomeness. The book contains 177 pages of tips, tricks, advice and guides, from over 60 designers working across the fields of product, automotive and fashion design. It's a luxurious treat that thoughtfully helps artists on the path to successful design sketching.

For a chance to win visit **www.designertechniques.com** and answer the following question:

What year was Designer Techniques founded?

Email **3dartist@imagine-publishing.co.uk** by 1 May 2012, quoting 'Learning Curves competition' as the subject with your full name and shipping address in the message.

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Artist spotlight

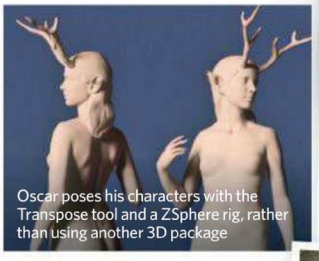
Creative characters

Hong Kong-based modeller and texture artist Oscar Sheikh enjoys the power of ZBrush for creating concepts

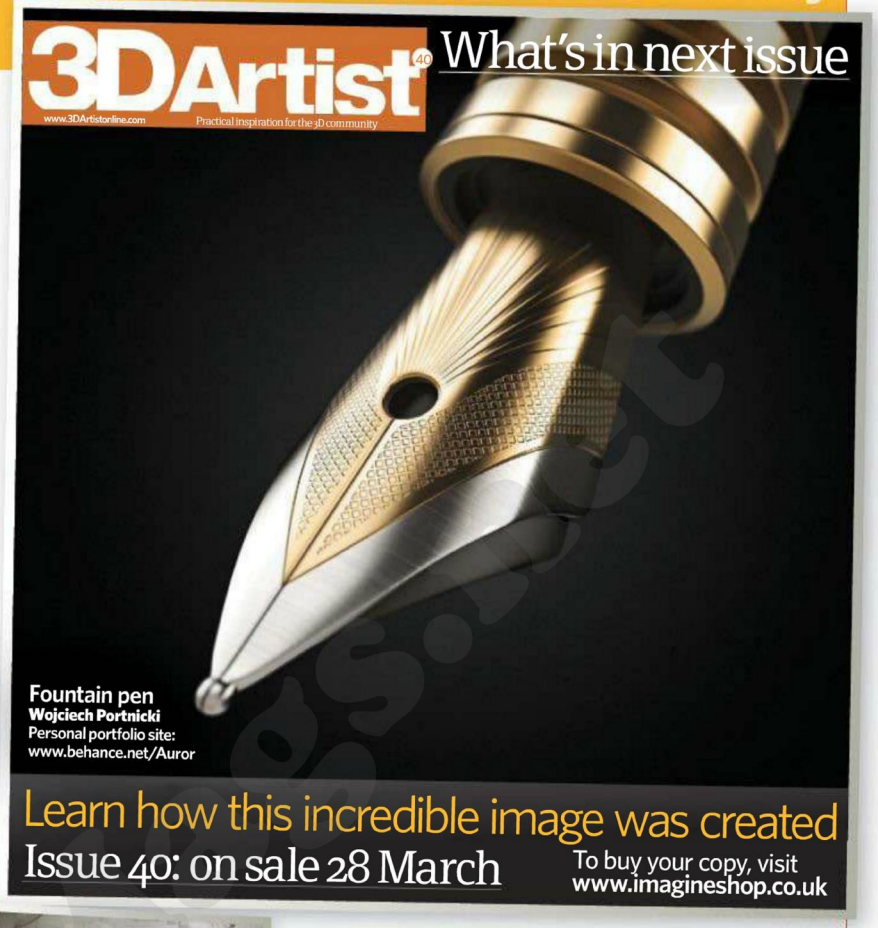
Oscar Sheikh www.oscarsick.com

Oscar first discovered digital sculpting when he took a modelling course at college. "I thought digital sculpting was very intuitive and fun," he says. "I did a lot of digital sculpting in my free time [and] I went to different forums to look at others' works. I found so many possibilities!"

Once familiar with the ZBrush UI Oscar found that digital sculpting was more about artistic than technical skills. "For me, digital sculpting has become a medium to explore designs three dimensionally," Oscar adds. "I can start exploring forms and proportion very quickly without... technical problems."



Oscar poses his characters with the Transpose tool and a ZSphere rig, rather than using another 3D package



Inspiration corner

A heartfelt gift

As a special birthday present for his wife, Meny Hilsenrad created a stop-motion-style film to document the achievements of her life in photos

Meny Hilsenrad www.studio-aiko.com

The most challenging part was choosing the 372 pictures and arranging them chronologically to sit well with the soundtrack

With 372 photos animated manually over 2,600 frames, this unique project was truly a labour of love. "It was very emotional for me to work on it... especially in the preparation stage where I went through the picture albums of Moran's (my wife) childhood, showing her with her parents who both passed away when she and her brother where younger," Meny says.

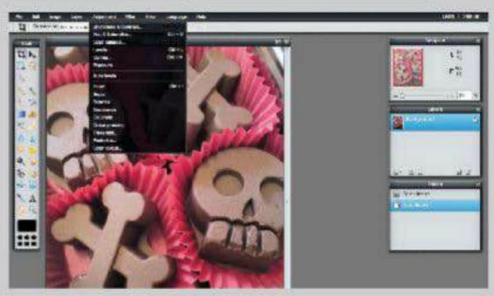
The scene is entirely CG – although you'd never guess! "I created the composition of the desk with the photos in the centre and with some basic elements that I scattered around," he adds. "[I then] started working on the animation of the photos that appear one after the other [which also involved] animating the surrounding objects and subtle movement of the camera location... to help achieve the stop-motion style that I was looking for." Watch the video at **http://vimeo.com/aiko**.

Free 3D Resources

Tweak your renders online

The Flash-based image editor for fixing images quickly and easily within your browser

Pixlr Editor **Web:** http://pixlr.com/editor



Pixlr Editor is a godsend for those in need of emergency image-editing tools. It looks and feels just like Photoshop, so you feel right at home as you open it up, and it's easy to find your way around and work the tools. If you're running a Flash version later than 10, your images won't leave your computer – they'll open directly in your local browser, making it great for quick resizing before uploading to your favourite social network or blog.

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Product of the month

MakerBot Replicator

» **MakerBot**
Stockist: http://store.makerbot.com
Price: $1,749
We say: 3D printing is taking the world by storm at the moment. Branching out into other industries, including homewares and fashion, rapid prototyping (as it's also known) is now heading into the mainstream and the idea of a home 3D printer is no longer far-fetched.

MakerBot's latest update to its 3D printer range arrives in the form of the Replicator. It's capable of printing bigger objects than its predecessor, the Thing-O-Matic, and it offers two-colour printing too. What's more, every Replicator is assembled by hand at MakerBot HQ and the company offers dedicated support to its customers. A

B Sliced bread notebook

» **Pukka/Dank**
Stockist: www.pukkadank.com
Price: $59.90
We say: It's true, $60 might seem like a lot to pay out for sketchbooks, but this pack of Sliced Bread is essentially a year's worth of doodle pads. A total of 12 individual books (one a month, maths fans) come in this loaf-style packaging, measuring up at 10 x 10cm each. Inside you'll find 160 pages of lovely 70gsm plain paper. These little beauties would make a great present for a creative friend... or as a tasty gift to yourself!

C Structura: The Art of Sparth

» **Design Studio Press**
Stockist: http://designstudiopress.com
Price: $34.95
We say: If you're a fan of futuristic, sci-fi landscapes and concept art in general, you'll love the latest book by artist Nicolas 'Sparth' Bouvier. This respected conceptual designer has worked in the games industry for 15 years and *Structura: The Art of Sparth* sees him sharing some of his techniques and stages of his workflow. It's packed full of inspiring and intriguing work to get the creative juices flowing.

D PlugBug

» **TwelveSouth**
Stockist: www.twelvesouth.com
Price: $34.99
We say: There's nothing worse than running out of charge or plugs when you're out and about. TwelveSouth hopes to ease battery woes with its latest product release, the PlugBug. It's a 10W USB charger that piggy-backs onto your MacBook Power adapter, meaning you can charge your MacBook and iPad at the same time. However, its two-pin plug limits its use if you're UK-based, but it's ideal if you travel a lot.

E Pentax K-01 Yellow

» **Pentax**
Stockist: www.pentaximaging.com
Price: $750 (body only)
We say: There's no denying this is a zesty little number from Pentax. Marc Newson is the designer responsible for the K-01's vibrant exterior and we have to say we rather like it. Beneath the yellow is an aluminium frame encasing a 16 mega-pixel camera and the ability to capture videos at full HD 1080p. While we're not too sure about the bigger buttons, its minimal dial features a HDR setting.

F Spyder 4 Elite

» **DataColor**
Stockist: www.smartimages.com
Price: £159.98
We say: We all know that colour can severely make or break an image, but the Spyder 4 Elite is DataColor's answer to your colour calibration woes. It accurately profiles your monitor and projector as well as defines custom calibrations – you can even use the same sensor to calibrate your computer, iPad and iPhone! The Spyder 4 Elite is able to manage multiple displays too, making it ideal for your studio space.

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Dell recommends Windows® 7.

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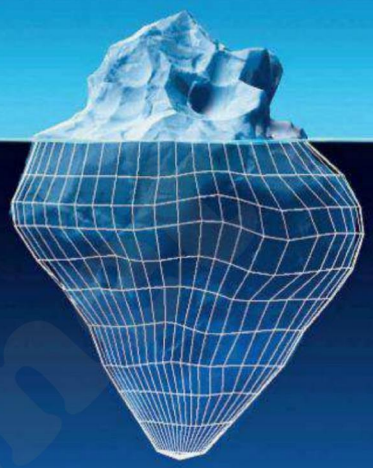

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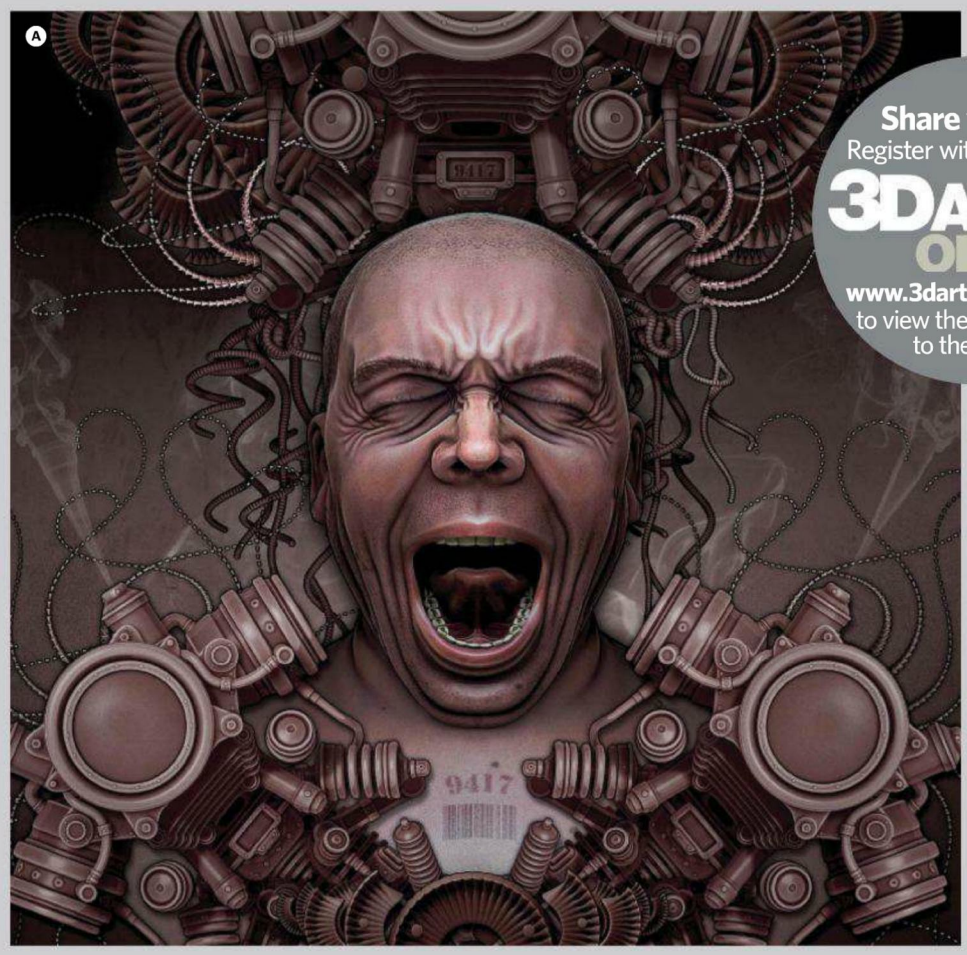

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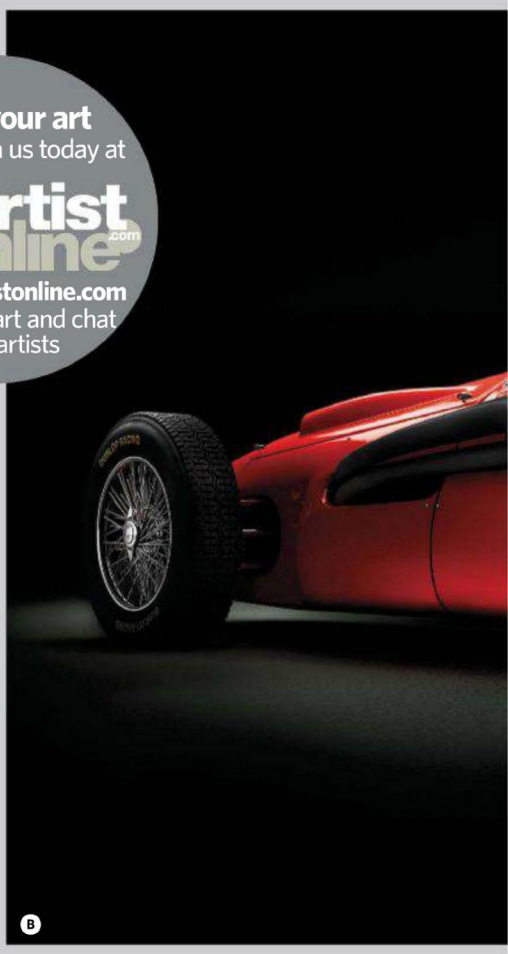


Pictures of the week

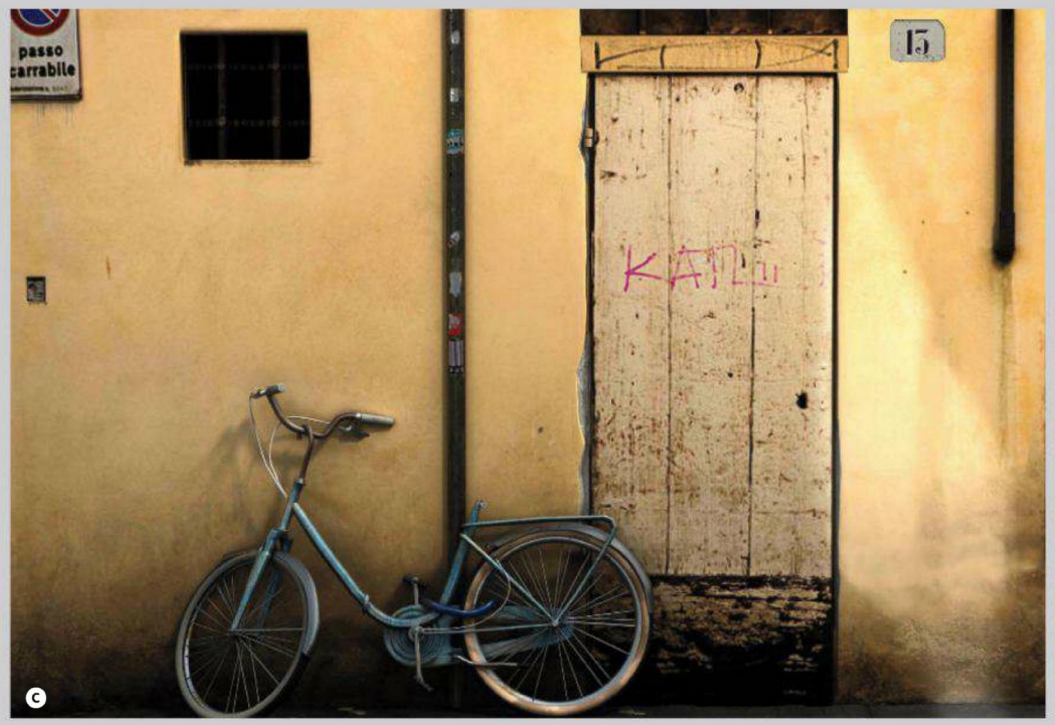
THESE ARE THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

A Richard Wazejewski
» **Not A Number**
Richard says: "Created using Silo, ZBrush, GroBoto and Photoshop"
We say: "An interesting concept. The style reminds us of a graphic novel or the film *A Scanner Darkly*"

B Peek Reclame-Fotografen
» **Maserati_back**
The studio says: "A 1957 Maserati V12 F1 GP made in CINEMA 4D"
We say: "Wow, what a stunning car. Really fantastic lighting, too!"

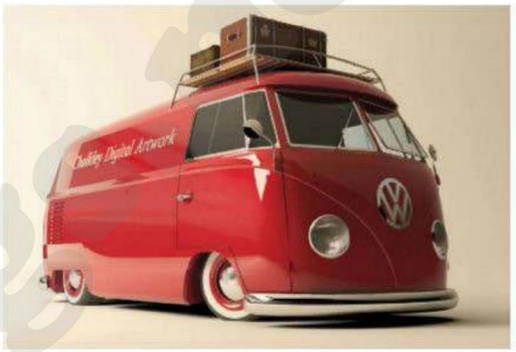
C Tasha Rosenbaum
» **Venetian Afternoon**
Tasha says: "This image took about 140 hours. It was modelled, lit and textured by myself using Maya, Mudbox and Photoshop"
We say: "We love the bike... and the grimy street"

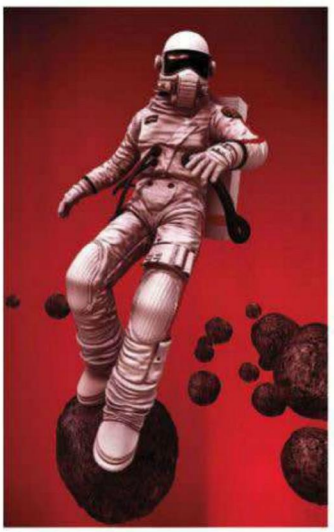
D Vladimir Kuzmin
» **Stil-life**
Vladimir says: "A photorealistic, still-life scene"
We say: "Excellent work – it looks like a photograph!"



Picture of the month

Plamen Stoianov
» **Day At The Beach [above]**
Plamen says: "Image created in 3ds Max, DAZ Studio, Reality Lux Render and Photoshop"
We say: "Great water – the sea's foam in particular is very realistic"





Gary Chalkley
» **Slammed [above]**
Gary says: "Created using 3ds Max, rendered with V-Ray and finished with Photoshop"
We say: "Lovely, low splitty panel van. Shame it's missing the indicators – perhaps there are some semaphores hidden down the side"

Zoltan Miklosi
» **Spaceman [left]**
Zoltan says: "Made with Blender 2.61 and Photoshop CS4"
We say: "Very cool – the fabric creases are ace!"

Matus Nedecky
» **Single Family House In Slovakia [above]**
Matus says: "I used Rhino, V-Ray and Photoshop for this image. It took me six hours"
We say: "Time well spent, Matus, well done!"

Have your say

Write, email or use the website forums to get in touch about the magazine, your problems or triumphs

Top tweets

Get involved... @3DArtist

@LinaLundstedt "[CG clichés?] That the computer does the work. I'm pretty sure some of my relatives still think I just tell the computer to draw 3D for me"

@TheDodgyLodger: "Is the monster design challenge really limited to a 100 millimetre (1 cm) cube?!"

@3DArtist: "100mm = 10cm :)"

@TheDodgyLodger: "Ahhh, that darn decimal!"

@HeidiLowell: "Hey @3DArtist, just looking through this month's issue & love the tribute to Luxology's 10 Year Anniversary – well done! :) @luxology #modo"

@Azhreicb: "A package of pictorial goodyness has arrived through my front door from @3DArtist. All good intentions for working today now out the window"

@Drparsnips: "@3DArtist had a fun arts and crafts session yesterday making this [calendar cube] – thanks again! #3dartist"

@3DArtist: "Here's what happened when our cover star met her real-life equivalent:"

@FlawinneYves: "Yay, bought a @3DArtist subscription today. Can't wait for the first mag :)"

@smoothoj: "I think the 'Going it Alone' piece is brilliant. Lots of useful tips for everyone here"

@rrrichy: "[MakerBot 3D printer competition] I NEED to win that"

Digital editions

Do you know if subscribers to the paper edition of 3D Artist magazine will get access to the iPad edition as part of their subscription fee in the near future? *Empire* magazine is doing this and it's useful for quick reference.

Chris

Hi Chris, unfortunately dual-format subscriptions are not something we offer to our customers at the moment, but please watch this space for future developments!

This bathroom was the first interior Connor Eccles had ever created

digital-tutors

www.digitaltutors.com is a learning resource site boasting a library of 14,000 video-based CG lessons.

Star letter

THE AUTHOR OF THIS ISSUE'S STAR LETTER WINS A MONTH'S FREE SUBSCRIPTION TO DIGITAL-TUTORS WORTH $45

Stateside fan

My name is James Gage and I'm a long-time 3D Artist fan. As a reader of the magazine, I really appreciate the level of content in each issue I purchase. I am located in the United States and very passionate about my craft as an artist.

I started out as a traditional artist and made the transition into 3D art about six years ago. I'm looking to forge a career in the industry and the information I receive in 3D Artist helps me grow in that aspect.

Thanks for your time and consideration. I look forward to receiving more industry information in the future.

James Gage

Hi James, thanks for emailing in and for your long-time readership of the magazine. We're really pleased to hear that 3D Artist is helping you on your way to a career. As such, we'd like to award you the Star Letter prize – a month's subscription to Digital-Tutors is on its way to you!

Check out more of Connor's work at www.imkonnr.deviantart.com

Modern interior

I wanted to send you some of the recent 3D images I've created. It's the first interior that I have ever modelled/rendered. The project was completed in just two days from start to finish.

Connor Eccles

Thanks for your email, Connor. The interiors look very stylish and well lit – well done!

SAVE MONEY & SUBSCRIBE! Turn to page 94 for details

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Wherever you are in the world, we've got a **3D Artist** subscription deal for you

Ciao dall'Italia

Last week I received my copy of 3D Artist magazine. Thank you for your support in my work! I've published an image of the opening spread on my blog.

Just one question: if I buy a one-year subscription of the magazine, how much will the extra costs for shipping to Italy be?

Alessandro Michelazzi
www.alessandromichelazzi.com

*Hi Alessandro, subscriptions to Europe cost £70 (GBP) for 13 issues of **3D Artist**. For more information, or to purchase a subscription, flick to page 94 or visit: **www.imaginesubs.co.uk**.*

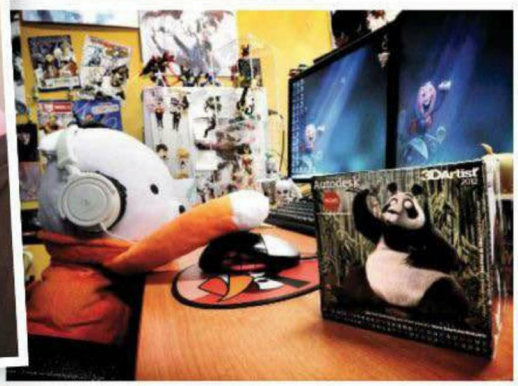
Calendar cube competition

Back in issue 36 we set you a challenge: create the free 3D Artist calendar cube and then take a photo of it with you in your workspace. A few of our favourite entries are included below. Thanks to everyone for their submissions. The winner, Dávid Rencsényi, receives a 3D Artist goodie bag!

"I know you wanted a pic of the calendar in my workspace, but I figured it was more fun to put my workspace in the calendar!" – Steve Kerry

"I loved the idea of the calendar cube – it's sitting on my table right next to my monitor. This past month it became part of my work environment, so I thought it would be fun to make a 3D replicate of the cube in Maya then scatter it around on my table. One of the cubes is the real one – try to guess which one it is" – Dávid Rencsényi

Garrett Gray adds a **3D Artist** theme to his workspace, desktop background... and his face!



"The calendar cube is now part of my workspace! Here is a shot of it with my friend borrowing my computer in the background... and no, he's not doing my work for me!" – Listya U. Harjadi

You tell us

What's the CG cliché you love to hate?

Facebook.com/3DArtistMagazine

David Griffin: "Chrome balls on chequered floors"

Andrew Hickinbotton: "Warrior chicks with barely any clothes, orcs, dragons and other tiresome fantasy stuff. I don't love to hate them, though – I just plain hate them!"

Paul Smith: "Overly motion-blurred human figures in arch-vis images (guilty as charged!)

Steve Kerry: "NVIATWAS [Naked Vicky in a temple with a sword] – aka a scantily-clad girl wearing armour that reveals more than it protects (often with matching high heels), posing in an 'exotic' location and carrying a ridiculously large sword for absolutely no reason whatsoever."

Cynthia Decker: "GLF™ – gratuitous lens flare"

Francis-Xavier Martins: "'Mood' smoke. The character isn't on fire. Take it off.

Steve Kerry: "Sunlight that comes from at least three different directions at the same time!"

JOIN THE DISCUSSION: Facebook.com/3DArtistMagazine Twitter: @3DArtist

@3DArtist

@ars_incendii: "The 'this is the ultimate tool to use' discussion!"

@chris_klein: "Let's see the wires"

@nicecrispybacon: "Half-naked Sci-Fi girls with shiny hair and robot heels."

@TheRealGelfie: "Orcs and overly wrinkled ZBrush characters."

@LucyCorrina: "Epic fantasy women's outfits. Techies become fashion designers... love it!"

@cahal: "Chrome balls on chequerboard tiles?"

Back issues?

I am interested in buying a few older copies of 3D Artist. I'm missing numbers 6, 9, 15 and 20. I've had a look on your online store, but it says they are sold out. Is there any other way of getting hold of these?

Gary Byland

*Sorry to hear you're missing a few issues of **3D Artist**. While the paper issues are out of stock, we have now released a collection of issues 1-20 on DVD called the* 3D Artist eMag Vol 1. *It's priced at £19.99, which works out at just under £1 an issue, and is available to purchase through **www.imagineshop.co.uk**. What's more, the disc is fully searchable and interactive, so you can flick through, issue by issue, or look for something by keyword or article type.*

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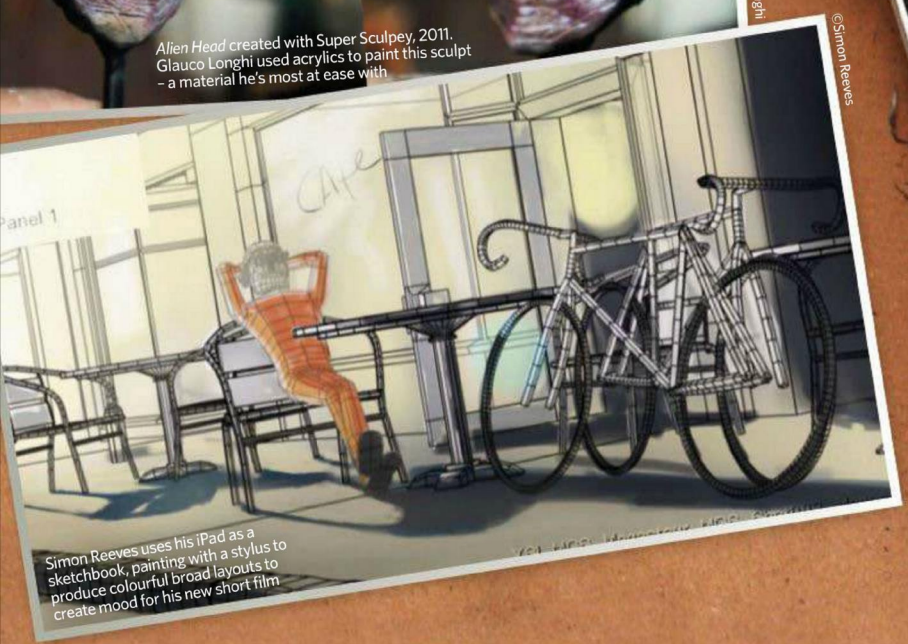
Alien Head created with Super Sculpey, 2011. Glauco Longhi used acrylics to paint this sculpt – a material he's most at ease with

©Glauco Longhi



Simon Reeves uses his iPad as a sketchbook, painting with a stylus to produce colourful broad layouts to create mood for his new short film

©Simon Reeves

OBSERVATION & INVENTION

We investigate how artists are using sketchbooks in the digital age

Words by **Lynette Clee**

Whether you prefer the charm of scrappy sketches bound in a book, or the orderliness of a blog that catalogues your doodles, a sketchbook means different things to different people. For some, it might provide a thankful escape from computers and deadlines, giving opportunity to enjoy the freedom of traditional scribbles. For others, it will be chance to connect the creative mind to canvas, to rough-out and develop ideas for a new project.

With access to so many tools today, the digital creative is no longer restricted to the traditional sketchbook. "I love digital drawing because it is so fluid and malleable – you have total freedom," says freelance digital artist Richard Yot, who has been drawing entirely digitally since 2003. "I know that many artists are attached to pencils and paper because that's what they grew up with, but personally I hate using paper now. Just like a writer would never go back to a typewriter after they've used a word processor, I would never go back to analogue drawing having enjoyed the benefits of drawing digitally."

Moonbot Studios' character designer Joe Bluhm also finds himself sketching digitally these days. "Starting a character design or working out a painting doesn't have to be on paper any more, it can be digital," he says. "With the quality of software and the advancements in hardware – thanks, Wacom! – I can now sketch directly into the computer. There is something gratifying and natural about the imperfections of the paper and pencil, though, and if I am craving that – or the feeling of the pencil dragging on the paper – I'll resort to the page or sketchbook."

With the sketchbook traditionally seen as a tangible journal for artists to draw and paint visual studies and representations in, and to explore concepts and develop new ideas, we find out how artists in the CG industry are using sketchbooks in the digital age, to observe and invent.

WorldMags.net

Created in SketchBook Pro using a Tablet PC, 2010. Richard Yot finds silhouettes great for exploring designs, since they are practical but leave the imagination free
©Richard Yot

Be picky with paper

Paper can make or break a design. Joe Bluhm gives us his preference

"I prefer a creamy, toothy paper. Not too thick or rough, but just enough so it's not slick." Joe also plays with toned papers. He explains, "A couple of teachers have told me to, 'save your darkest darks and whitest whites', and using toned paper can take care of one of those for you."

> "Just like a writer would never go back to a typewriter... I would never go back to analogue drawing" **Richard Yot**

Look to learn

Being able to draw is one thing, but to be able to understand form and function requires learning to see through inquisitive eyes. An artist's faithful sketchbook offers the perfect place to document the world that surrounds them, as they eagerly develop these fundamental observational skills.

Studying nature and human anatomy can, for one, help develop sound understanding of shape, volume and form. "Anatomy is paramount," Joe counsels. "I don't think everyone has to name every muscle in the body, but being able to know it so you can draw it or sketch it – no matter how much or little detail – makes a huge difference in your work." If you have access to life-drawing classes these can provide invaluable experiences to better comprehend the human figure and all its nuances. And while drawing from photographs is a readily available alternative, learning to really see, and to carefully capture the correct proportions, curves and foreshortening of a model from life, is an incredible skill to master. "Life drawing gives you an opportunity, with no excuses or distractions, to draw the human form in space, with respect to light," digital illustrator Richard Yot says. "There is no other task at hand, so it is pure and in-your-face education on the human form and basic drawing fundamentals."

The study of anatomy is also of particular importance for artists working with creature design and stylised characters. "The knowledge is useful for all sorts of reasons," Richard says, "and the ability to draw frees you to create without being hampered by limitations." The better an artist's understanding of bone structure, muscle groups, posture and volume, the faster and more physically accurate their designs will be. "For creature design, human and animal anatomy is like the foundation," freelance sculptor Glauco Longhi comments. "Without it, you can't

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Our sketchers

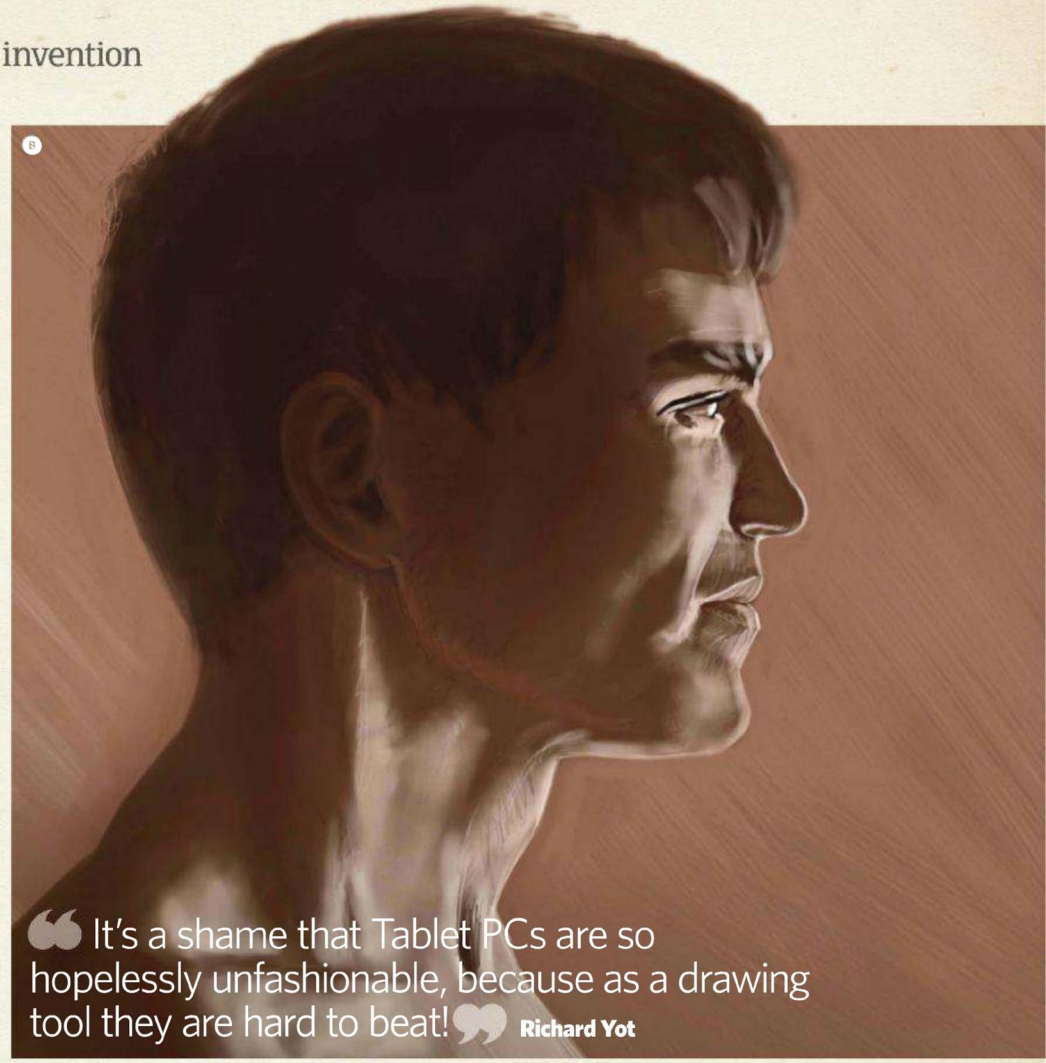
Glauco Longhi
Location Brazil
Website www.glaucolonghi.com
Expertise Sculpting
Software ZBrush
Preferred sketchbook format Clay sketches, paper, Photoshop, ZBrush
Bio Glauco is a talented sculptor working primarily for the cinema and television industries, while also creating fantastic toys as well as collectibles

Joe Bluhm
Location United States
Website www.joebluhm.blogspot.com, joebluhm.com
Expertise Characters, stories
Software Photoshop
Preferred sketchbook format A small Moleskine book with nice cream-coloured, toothy paper
Bio Joe is an illustrator, story artist, character designer, art director, caricaturist, painter, publisher, and author of two art books. He's currently a devoted member of the Moonbot Studios brigade in Shreveport, LA

Richard Yot
Location UK
Website www.itchy-animation.co.uk
Expertise Illustration, character design
Software modo, ZBrush, Photoshop
Preferred sketchbook format Digital
Bio Richard is an illustrator specialising in creating quirky characters and worlds, applying generous dollops of handmade charm to his beautifully-crafted designs and works

Simon Reeves
Location UK
Website www.simonreeves.com
Expertise 3D VFX
Software Softimage
Preferred sketchbook format iPad
Bio Simon has been working in 3D for over ten years now, after moving to London once he'd graduated. He's produced work for a variety of large studios, in many different mediums

Zoltán Mányi
Location Hungary
Website http://zoltanmanyi.blogspot.com
Expertise Modelling, sculpting, texturing
Software ZBrush, 3ds Max, Photoshop
Preferred sketchbook format Digital
Bio Zoltán began learning 3D around four years ago, mostly doing freelance work for small companies. Now he specialises in modelling and characters, and has a passion for all kinds of character creation



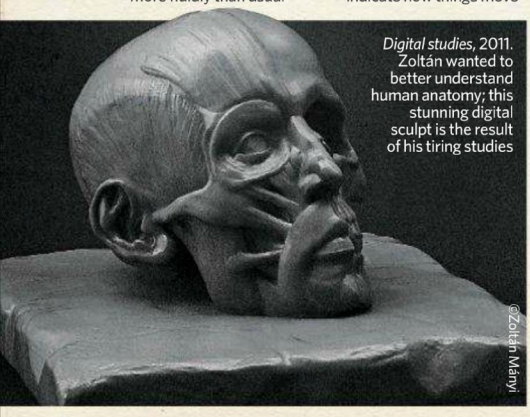
> It's a shame that Tablet PCs are so hopelessly unfashionable, because as a drawing tool they are hard to beat! **Richard Yot**

A *Orc clay study*, 2011. Clay sketching is the most prominent medium in Glauco's sketchbook, but he finds drawing and ZBrush are also useful

B Created in Photoshop using a Tablet PC, 2009-2011. Sketches from photo references let Richard work faster and more fluidly than usual

C Joe works long hours at Moonbot, so it's easy to forget the spark of a new project. "My sketchbook is a nice record of those sparks," he says

D Joe will often leave notes on his sketches to pass on information about colour, materials, back stories... Arrows can also help indicate how things move



Digital studies, 2011. Zoltán wanted to better understand human anatomy; this stunning digital sculpt is the result of his tiring studies

create something believable that can exist and look real." But if you don't have local life-drawing classes, there are of course alternatives. Joe suggests: "Other than a classroom setting with a nude figure, I'll set up in a coffee shop or bookstore, some public place, and draw the patrons around me. That's a great way to observe life and characters in their environment – and it's really fun!" Pay attention on your travels, when you're out with friends, or even just having lunch – learn to watch how people compose themselves and interact in different situations. "Personally, I think gesture – how people stand, how they move – is the most important thing, and observing and drawing people is the only way you can get to learn it," Richard adds. "There's no point making a detailed drawing of realistic anatomy if the arms look awkward or the pose looks stiff."

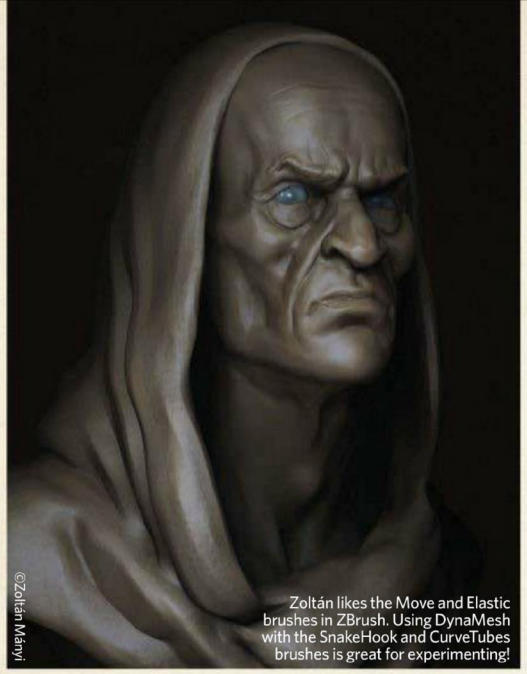
Sketching in public isn't for everyone, but learning to see the world is something anyone can do, and is critical to your development as an artist. "When I travel, I try to keep my sketchbook with me, and my digital camera to take pictures of everything that I can use on future projects," Glauco says. And if you prefer to sketch indoors, grab some books, use photos you've taken – study them! Practice further by setting up an interesting still life, or ask your friends (patient ones) if they'd like to sit for you. "Having a friend sit and pose for you – with clothes on works – is a great way to learn form without having to pay to see a nude model," Joe says. "I think it's even stronger, because then you also learn about drapery and clothing." And if you don't have any friends, there's always the mirror, for studying facial anatomy and expressions. Digital artist Zoltán Mányi studies anatomy for two hours each day before he begins a personal or client project. "I watch tutorials and draw from books and practise in ZBrush," he explains. "Since I mostly do characters I can apply what I've learned directly afterwards – this way it stays in my mind."

Improve your anatomy skills

A good anatomy book can quickly become a character artist's bible

Get up to speed with these recommended resources

- *Anatomy for the Artist* by Sarah Simblet is Glauco Longhi's favourite – although he actually owns more than 20 anatomy books, each showing different approaches to the human figure
- *The Artist's Complete Guide to Facial Expression* also comes with a thumbs up from Glauco. "[This] is an awesome facial anatomy book!" he says
- Glen Vilppu's instructional DVD set is the go-to resource for Richard Yot. "Nothing else comes close!" he exclaims
- The *Drawn To Life* series by Walt Stanchfield contains Richard's favourite anatomy books, since they concentrate a lot on gesture
- *Human Anatomy for Artists* by Eliot Goldfinger and *Anatomy for the Artist* by Jeno Barcsay come high in Zoltán's top three – the other being *Die Gestalt des Menschen* by Gottfried Bammes
- Also check out this free figure-drawing website, featuring both clothed and nude models at selected timed intervals or classes to help you study poses and gesture drawings: **www.pixelovely.com/gesture/figuredrawing.php**


©Richard Yot
©Zoltán Mányi
Zoltán likes the Move and Elastic brushes in ZBrush. Using DynaMesh with the SnakeHook and CurveTubes brushes is great for experimenting!

©Joe Bluhm / Moonbot Studios

A sketcher's toolkit

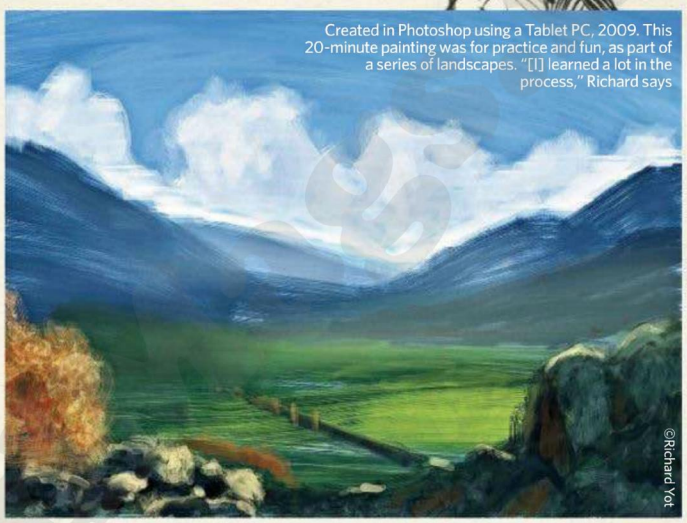
A few simple tools can help give you confidence to represent any idea without the pressure to 'finish' a piece

Moonbot Studios' Joe Bluhm is never without:

- A Prismacolor pencil
- A Zebra brush pen
- A toned marker, like a Copic or Prismacolor – nothing too dark, just to give depth or shadows to a sketch
- A Pentel Pocket Pen, or a Prismacolor fine liner

"I don't agree with people who use [or] see their sketchbooks as fine art, or a finished piece," Joe says. "Once it's used as such, the artist thinks of it as such, and they treat it differently – and dishonestly, in my mind."

Taking reference photos of character poses and interesting textures will also help you build your own library of helpful go-to resources. "The key to using reference is to not be a slave to it," Richard comments. "Use it as a starting point, and then do your own thing. One technique I often use is to just use reference for small details; for example, draw a face from imagination but use reference for the nostrils, cheekbones, or the shape of the eyes. This will [enable] you to incorporate authentic and believable details into a drawing that is very much your own." Richard has categorised folders on his computer for anatomical details such as arms, legs and hands, one for hairstyles, another for clothes, and so on. Keeping your references in separate folders will help you quickly find what you're looking for. "My anatomy books are full of bookmarks, and my images are all in folders, like 'arm muscles', 'skull refs' and so on," Zoltán adds.


©Richard Yot
Created in Photoshop using a Tablet PC, 2009. This 20-minute painting was for practice and fun, as part of a series of landscapes. "[I] learned a lot in the process," Richard says

©Joe Bluhm

Explore your creativity

While a sketchbook can be a helpful companion to keep track of your studies, it can also be a useful tool for the development of new ideas. Whether you choose to sculpt with clay and paste photos of your concepts in a book, or prefer thumbnailing character designs digitally to save in a folder for future reference, what's important is a record of the creative thought process. "I tend to try out many different ideas and variations as thumbnails or silhouettes – the key is quantity," Richard offers, "the more ideas I try, the more likely I am to get ones I like. The trouble is, I end up having far more ideas than I can take to a finished standard." Zoltán prefers to sketch in 3D. He explains: "At first, I only sketch out a very rough idea, and if I like it I develop it further in ZBrush. After I've done a rough 3D version of my sketch I continue to refine my ideas by drawing on a Print Screen of my model. I draw on areas that need to be fixed and add things to the concept this way, developing it further."

Sketchbooks are always helpful during the storyboarding and pre-visualisation process for animations and films. "Committing to an entire sequence or story beat is big," Joe says. "To break it down to something small – a thumbnail or small sketch – can take something big and make it feel small and surmountable. This is typically the first step in figuring out a story, a character, or anything involved in the

Sketching on the iPad

Simon Reeves is using his iPad to design colour scripts for his new project

Painting with a stylus on the iPad gives Simon the freedom to create broad layouts. "The iPad is ideal for that," he says. "It lacks the pressure sensitivity and resolution which you achieve from a Wacom tablet, but, for me, the iPad as a sketchpad is a very practical day-to-day option when compared to carrying a tablet and a laptop with me – or even less practical traditional mediums.

"For the colour script, I'm painting over grey-shaded stills from pre-vis of the film. These I can open on my iPad using Dropbox, paint over in Sketchbook Pro using a Wacom stylus, export back to Dropbox, and quickly review the shots on the iPad or my main machine. This could also apply to using sourced reference images – or even photos taken from the camera on the iPhone. The workflow has proven straightforward for me, and I can pick it up and start sketching anytime, anywhere!"

©Simon Reeves
Simon needs a reliable, practical pipeline that he can pick up quickly to get to work when he has time in between projects

WorldMags.net

E

E *Life-size creature bust*, 2011. Glauco sculpted this beast during a live sculpting session, giving him a real 360-degree view of his concept

F Created in ZBrush with DynaMesh, this PolyPainted chappy was created for our sketchbook feature in 30 minutes, to show just how fun and relaxing sketching can be!

G Sketching digitally helps Joe Bluhm to never be afraid of trying something; to make a stroke, to draw a shape, he can always undo, redo

H *Alien head studies in clay*, 2011. Sketching very rough forms in clay always helps Glauco prepare before sculpting the large-scale versions

I *Creature sketch in clay*, 2011. Glauco prefers to sketch with clay, but he also loves ZBrush's tools, and Photoshop can often help speed things up too

design of animation or illustration. Once something feels good as a sketch, I'll take it to a more final design – larger paper or digital – trying not to lose what I've found or learned in the sketchbook, but not sticking strictly to it, always growing and improving." For 3D VFX artist Simon Reeves, rough colour scripts painted over pre-vis renders on his iPad provide a quick way for him to establish the mood of a particular scene or sequence. "Often it might be appropriate to exaggerate colours and simplify tones, as the images are primarily useful as quick reference images to rough out the language of the film," he explains. "Basing the sketches on pre-existing simple 3D pre-vis stills also helps readability and continuity."

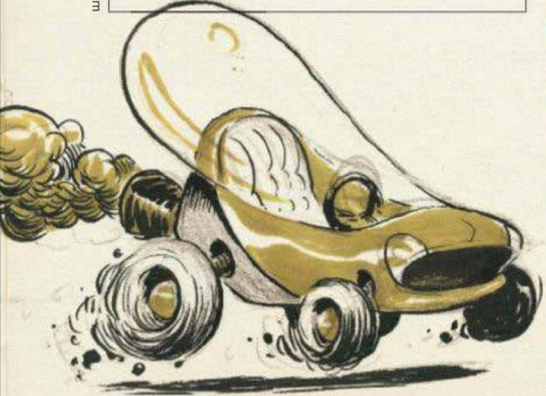
Those designing characters for modelling, animation and rigging in the fast pace of an animation studio find it helpful to plan concepts while keeping in mind how it will move and function in 3D. "For example, when designing armour, I have to make sure the knee area can bend properly," Zoltán explains. Joe advises to "always think of space". He goes on: "A good friend of mind, Stephen Silver – great artist, great at sketching – once told me about a drawing I had that it was 'great, but it doesn't 'work' in space'. What he meant was, the liberties I took as an illustrator didn't make the character feel structurally sound, and that if you took that image and made it three-dimensional, and turned it around, it would not be clear or pleasing. Thinking from all angles, and thinking in 3D space, or structurally, is always a top-priority when executing a design for CG animation – or any animation." Leaving notes and annotations on your designs can also be helpful to ensure whoever gets your design knows what you were thinking. "[It] is a great way to break down decisions, unseen details, references for textures and surface, style implications, and so on," Joe continues. "I like to give as much information as I possibly can when passing along a design, as I know I'll not always be over the modeller or rigger's shoulders to suggest tweaks or corrections. By trying to cover my bases before handing it off, I make myself happy in the long run, and practice being clear with my team – something that is often a weak spot at any studio."

F

Top tech for digital sketching

With high-quality software and advanced hardware at our fingertips, there is a host of options available

- Photoshop is an obvious application for digital sketchers that many artists already feel comfortable with. Particularly enjoyed for its brush engine and for painting with colour
- SketchBook Pro is simple and well designed, and can be used on your iPad and iPhone out and about. "[It] gets out of your way and lets you sketch!" Richard says
- Alchemy is another 2D sketching tool designed for, well, sketching, and can lead to some interesting results. Best of all, it's free! Find out all about it at **http://al.chemy.org**
- There are several iPad apps also on the market for sketching, including ArtRage, Procreate, and Layers – Pro Edition, among others. Search the iTunes App Store to discover more
- For those without an iPad, Tablet PCs offer an affordable alternative. "The Tablet PC is still the best choice for me, in terms of precision and feel – it is almost identical to a Cintiq," Richard Yot says. "It's a shame that Tablet PCs are so hopelessly unfashionable, because as a drawing tool they are hard to beat!"



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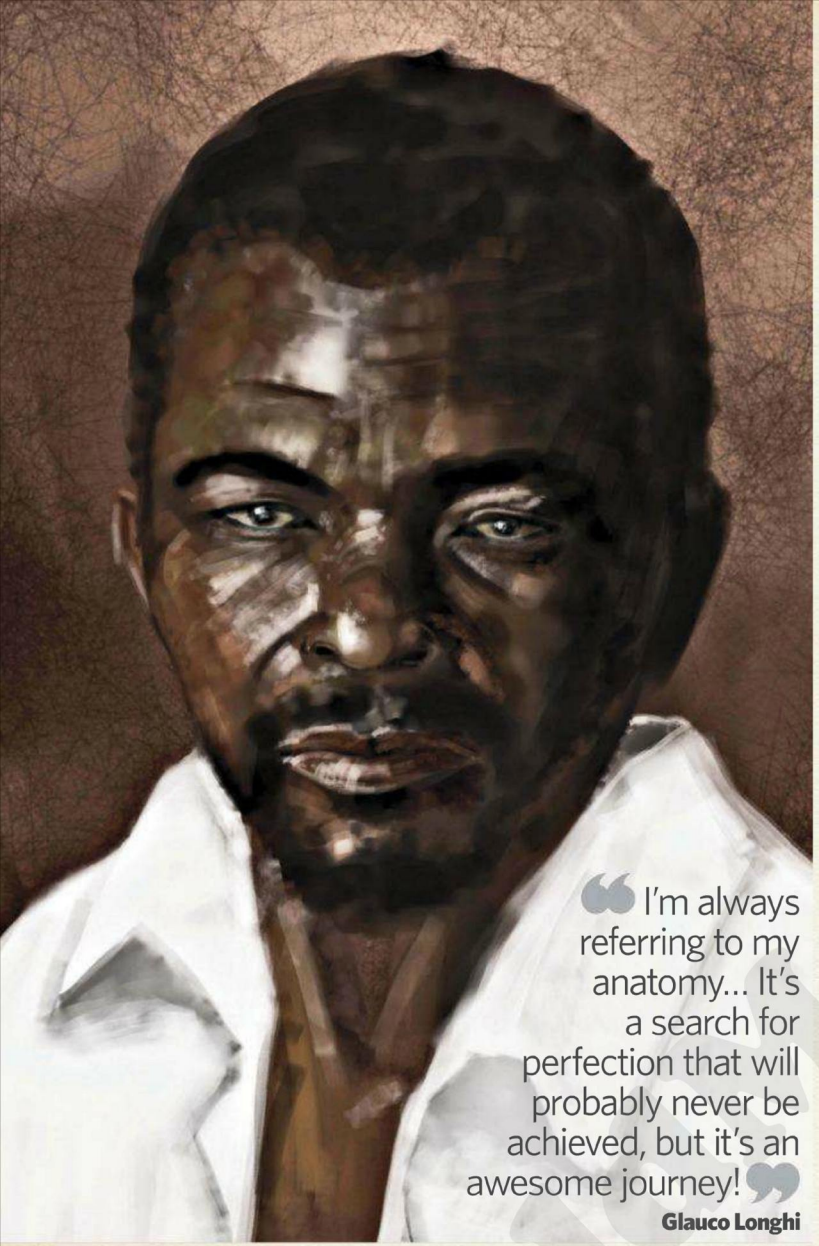
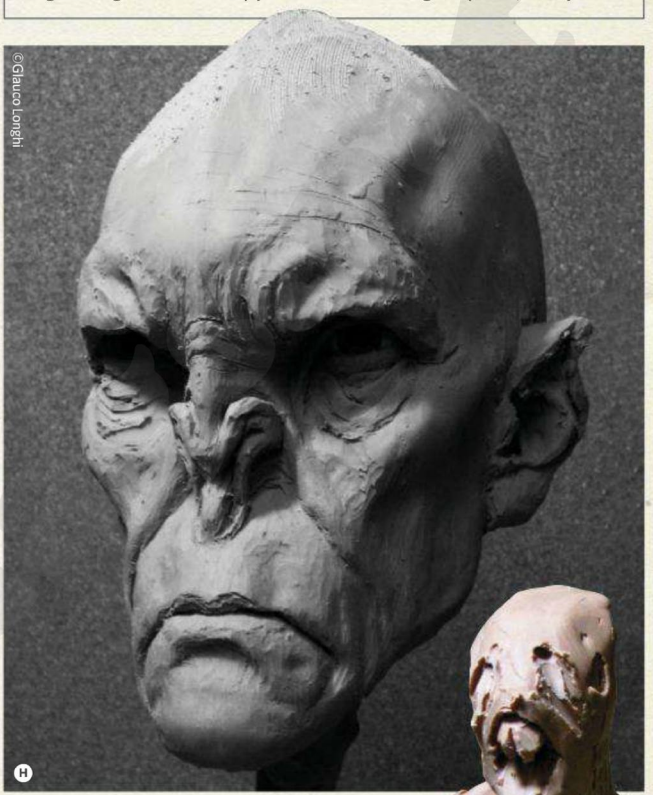


> I'm always referring to my anatomy... It's a search for perfection that will probably never be achieved, but it's an awesome journey!
>
> **Glauco Longhi**

Break the creative block

When you hit the wall, don't panic – try one of these tried-and-tested techniques to smash through it, or at least steer your way around it

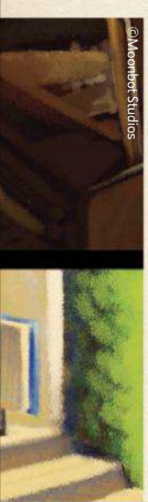
- Grab some clay and get muddy! "Clay is easy to block things in," Glauco says. "Try to use your hands and keep forms clear"
- Joe recommends sliding a pencil around when he's feeling blocked. "[I'll] make light shapes that converge until I see something interesting," he explains. "It usually ends up being a character, animal or vehicle, but I may have explored a shape or approach that I don't typically use – it's often very fruitful"
- Write a story. Richard finds a way to escape a visual block is to write. "It's another way of generating ideas and can help you to think of something unexpected," he says



Inspiring sketchbooks

To help push those pencils and graphics tablets, check out these inspirational suggestions

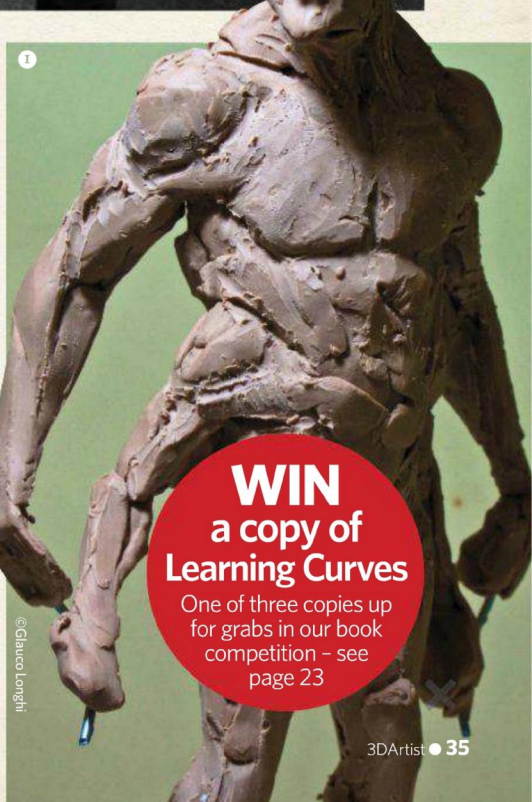
- Google Image-search 'Paul Komoda sketchbook' for a feast of sketches and sculpts by this master sculptor, who's been keeping his infamous sketchbook going since 2000!
- The Art of Kurt Papstein offers tips into thumbnail sketching, and roughing out ideas in ZBrush: **http://kptoons.blogspot.com**. This blog is filled with incredible snapshots of Kurt's sketchbook, as well as helpful video demos
- Shaun Tan's wonderfully weird sketchbook is filled with fantastic doodles and paintings that can be found on his website at **www.shauntan.net**
- Jake Parker is one of Joe's favourites. "His lines, simplicity of shapes, sense of space, and playfulness is perfect for drawing out ideas to a point where they are developed enough to execute on a larger scale, but charming and swift enough that they probably just flow out of his hand." Visit **http://agent44.com**
- Indulge in the art of DreamWorks' character designer Nicolas Marlet with this inspirational Tumblr page, featuring designs for the likes of *How to Train Your Dragon* and *Kung Fu Panda*: **http://artofnicomarlet.tumblr.com**
- Willie Real is a designer for feature animation by day, and experimental sketcher by night. Visit his blog to discover an array of quirky concepts to lift your mood: **http://williereal.blogspot.com**



Present your doodles

Forum threads, blogs, Facebook pages and creative networks offer today's artists opportunity to collect and share thoughts and images. Forums can offer constructive feedback from the community to help you develop an idea. Facebook and Twitter make it effortless to quickly share work with instant interactions, helping you gauge the popularity of a concept or project. A blog can be a great place to ramble, muse and share art with like-minded followers. Or, like Joe, you could publish a book! "I was moving to a new apartment in New York, and when cleaning my bedroom I found lots of sketches, sketchbooks, loose pieces of paper with drawings and folders," he says. "I was going to throw them out, when a friend suggested I put them together into a book. I realised then that my favourite books... were sketchbooks, and the artists who put them together. I figured if there are a dozen artists out there who would like it, it's worth it. So I published *Sketch Infectus*, a collection of nearly 400 drawings and doodles with tips and quotes from myself and 35 colleagues of whom I admire.

Alternatively, you could leave your imagination on your hard drive. But then, that would be a shame for the rest of us, wouldn't it?

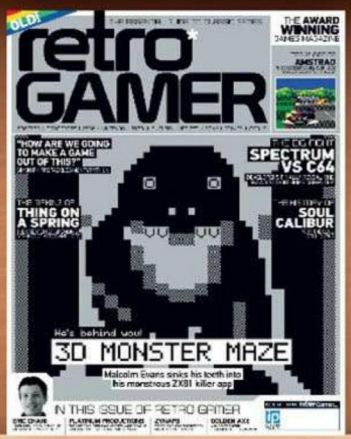


WIN a copy of Learning Curves

One of three copies up for grabs in our book competition – see page 23

Your favourite magazines n

3D Artist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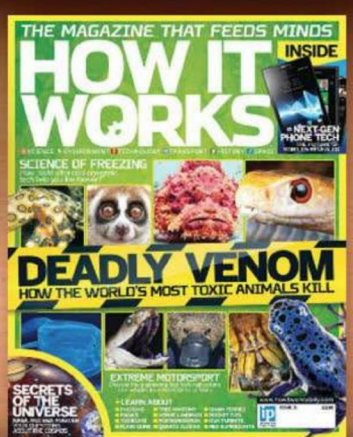
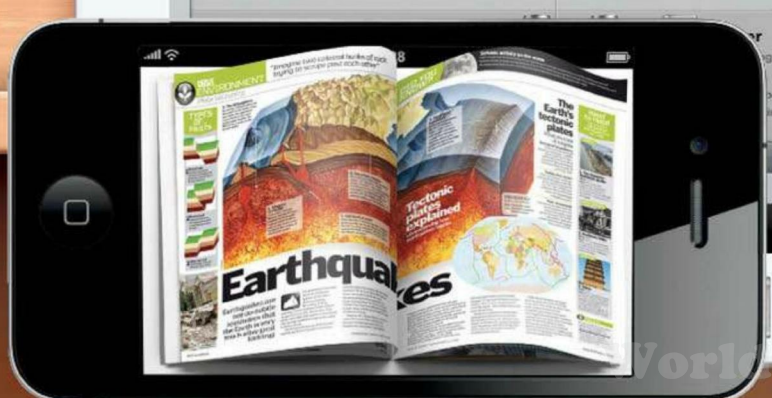


How It Works

Linux User & Developer



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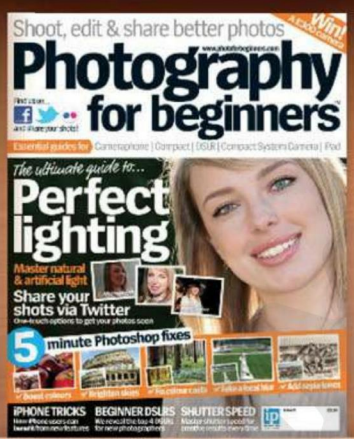

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Check out the three virals on Marshmallow Laser Feat's Vimeo channel: http://vimeo.com/34025760 http://vimeo.com/34021153 http://vimeo.com/34029751

3D projection mapping just got serious

The project Dynamic projection mapping with camera/head tracking for Sony PlayStation Video Store
Agency Studio Output
Client Sony Entertainment Network
Software used 3ds Max, Unity

For the launch of the Sony PlayStation Video Store, MLF's job was to bring a living room to life with hints of various Hollywood blockbuster franchises over three films. Deciding to push projection mapping to new levels, the collective projection-mapped a living room space with camera (or head) tracking and dynamic perspective. With all content real-time 3D, the camera or head was tracked to match and update the 3D perspective in real-time to the viewer's point of view. The results? Spectacular.

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Making dreams reality

Marshmallow Laser Feast pushes the boundaries of 3D projection mapping for an immersive movie experience like no other

Words by **Lynette Clee**

All Photography © Sandra Ciampone www.meorme.com

Marshmallow Laser Feast

Three UK companies collaborate under the identity Marshmallow Laser Feast (MLF) – essentially a skilled network of artists, designers, animators, directors, architects, engineers, programmers and musicians. **www.marshmallowlaserfeast.com**

FND

Company The Found Collective
Website www.thefoundcollective.com
Bio Founded in 2007, The Found Collective (FND) is forever in search of projects that will help the team explore all kinds of opportunities.

flat-e

Company Flat-e
Website www.flat-e.com
Bio Flat-e comprises of filmmakers Matt Bateman, Robin McNicholas and Rob Slater who create films and animation for music promos, feature films and live events.

MSA VISUALS

Company Mega Super Awesome Visuals
Website www.msavisuals.com
Bio Mehmet (aka Memo) Akten is the artist, director, musician, engineer and mad scientist behind Mega Super Awesome Visuals.

Interviewees

Name Barney Steel
Company The Found Collective
Role Director/producer

Name Robin McNicholas
Company Flat-e
Role Director

Name Memo Akten
Company Mega Super Awesome Visuals
Role Director

Name Ian Hambleton
Company Studio Output
Role Creative director

The feisty Marshmallow Laser Feast team poses on set with an array of props

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> One of our biggest triumphs was getting a working Wolverine glove made from a bike pump and party blowers

The one with the octopus

As our hero character relaxes in the comfort of his sofa, he reaches to switch on the PlayStation, knocking a small ball that calmly rolls into a can on the table. The can rocks over, and what spills from it is enough water to fill the entire room. As the space floods, the walls are forced to collapse, revealing behind them a wide ocean that plays host to a pirate ship and a rather hefty-looking octopus out in the distance.

One of the delightful puppeteers pops in to set down a fancy martini on the table, reminding us to question the real and the virtual. At which point, a now angry-looking octopus approaches directly from behind, attacking the human character with flailing tentacles. A canon fires from the ship out at sea, giving way to the end of the film as the projection finishes and the crew celebrates on-set with the real-world props.

Three films, all shot in real-time, in one take, with no postproduction and no special effects. A challenge not for the faint-hearted, Marshmallow Laser Feast (MLF) is a gathering of the best of the best from all fields in moviemaking. Together, this uber-team of creative and technical wizards decided it was high time to take interactive technology and animations out of the box, projecting into space for an experience that only dreams were made of – until now.

Blurring the boundaries between the real and the virtual, the MLF directors felt somewhat cheated by the Eighties' promise of future virtual reality. Though they'd never tackled anything of this calibre before, plenty of R&D set them on the right path to real-time 3D projection mapping glory – that, and six weeks of weekends and late nights. Clever use of the PlayStation SDK, gyros in the PlayStation Move controllers and camera equipment helped the determined team find exactly the right position, perspective and orientation to fuse the real with the projected for mind-blowing results.

> We are really excited by the potential of new technologies to create engaging experiences

We talk to the talented directors behind the technique they now refer to as 'immersive imaging', about the challenges of blending physical and virtual effects in real-time projection mapping, and discover how 3ds Max and Unity helped to create breathtaking results in a short time frame.

3D Artist: *Can you tell us about the brief for your client, Studio Output? What was your initial response?*

Marshmallow Laser Feast: Studio Output already has close ties with Sony Entertainment Network and had seen our Vodafone project where we projection-mapped a number of phones.

Vodafone was like phase one of an R&D project that explores the potential for creating illusions through matching the projection-mapped sweet spot with a roving camera. We faked it on the Vodafone job by choreographing our real

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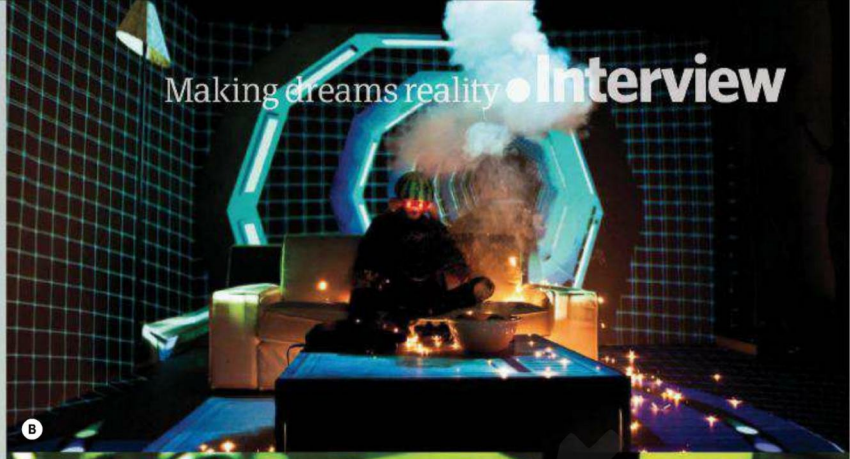
Check it out!
Watch the making of on the Official PlayStation YouTube Channel: http://youtu.be/zLBMghIJM5Q

A


B

C

D

Creative freedom with Unity

MLF explains why Unity was the game engine of choice for this particular project

"We chose Unity because we had such a short development period, and Unity enabled us to turn the project around in the short time frame," says MLF. "Our 3D animators could work in 3ds Max, import their models and animations into Unity and further tweak the positions, animations, keyframes, timing and so on.

"Unity has an intuitive GUI, which most 3D artists can pick up very quickly. Also a lot of the events can be scripted quite simply. Finally, Unity enabled us to add the real-time polish that we needed, deferred rendering, lots of lights, soft shadows, ambient occlusion, particles, lots of other post effects... which normally would have taken us a lot of time to develop. Thanks to Unity we could just enable them all with a tick box!"

camera to the pre-rendered animations but the intention was always to do everything in real-time.

With this in mind we pitched the big idea of projection mapping a room with a real-time camera and head tracking. This makes it sound like the technology was driving the creative, but it's more about establishing a new framework for experiencing content, within which the creative potential for making immersive experiences is very large indeed.

3DA: *What was your overall experience in 3D projection mapping before this project, and how did you use that to push your work to new levels?*

MLF: Projection mapping feels like a juicy way of taking animated content away from the screen and into the real world.

Playful experimentation is at the heart of what we do and our best ideas are born from that process. We are really excited by the potential of new technologies to create engaging and immersive experiences. It all comes back to the experience, and in fact the Sony project is a good example of how the end product exists as a viral, but the real experience is in seeing the illusion at first hand with a PlayStation Move strapped to your head.

3DA: *Where do you start with something like this? How much planning is needed?*

A Prepping for takeoff. Precise timing is needed for quick transitions

B Pyrotechnics were used for an explosive finale to an epic sci-fi adventure

C This grumpy robot head steals the show when it transforms into a slick plane

D Getting the human element into this project was a big challenge for the team

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> Animations were triggered live so we could account for a certain looseness in timing and pyrotechnics

In one of the films, the main character gains the ability of telekinesis to levitate a fruit from a bowl in the air, prompting us to question what's being projected

MLF: We were approached because the client liked what we had done on the Vodafone evolution of mobile project. On this project we were given lots of creative freedom.

We brainstorm around the brand values and how to playfully combine them with our passions to carry a relevant message while also doing something we are going to get excited about.

After an initial few weeks of research and development to establish exactly what was possible before we finalised the creative, we suggested the idea of real-time projection mapping, and this then led to the three films.

3DA: *Were there any ideas that were just too impossible? And what would you say were the biggest triumphs overall?*

MLF: Yes! There were loads of ideas we had that were impossible to realise within the time frame. Working out how to track and video-map moving geometry, people and furniture – sofas spinning and walls rotating all with live projection mapping... We just need [another] one for the next trusting client!

Personally, one of our biggest triumphs was getting a working Wolverine glove made from a bike pump and party blowers. Unfortunately, it didn't make the final [cut of the] virals.

3DA: *How exactly did you create the 3D to project so perfectly into the intended space? What software was used and how much testing was involved?*

MLF: We used 3ds Max to model our physical set – which we measured with laser measures. We also positioned all of our projectors in our 3D scene as cameras with the same lens offset, throw ratio and so on.

The whole thing was then moved into Unity. Using a real-time 3D engine enabled us to move all of the virtual furniture around, tweak the virtual projector (our camera) positions, angles and distortions.

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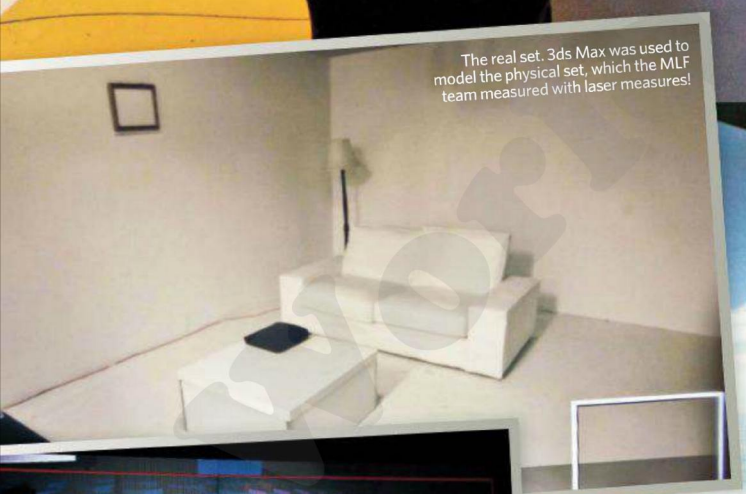
The one with the robot

As the human character picks up his PlayStation controller, the lights go out and peculiar strobes of light from a window behind him shine through into the space – it's all very dramatic. A glowing purple cube emerges from below, hovering in mid air before imploding with dramatic side effects as the walls and floor begin to slide and change, revealing a futuristic setting atop a bunch of skyscrapers.

Now it gets really fun: a cardboard box gets placed over the hero's head, which then adorably lights up with the projection of a robot's face. As he stands, he calmly reveals a set of wings, while the sofa he was perched on is deconstructed to form the foundations of a jet plane. Getting into position with the help of the puppeteers, he is folded and shaped into the form of a superb aircraft, which then delightfully goes on to fly through the city... and then through space. This is truly the work of pure genius.



The real set. 3ds Max was used to model the physical set, which the MLF team measured with laser measures!

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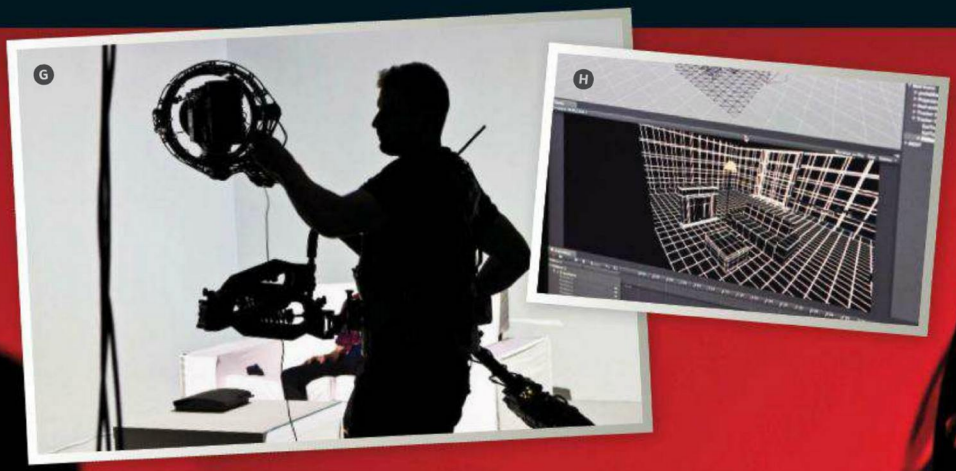

> "Projection mapping feels like a juicy way of taking animated content away from the screen and into the real world"

G Having never tackled a project like this before, lots of research and testing was a natural path of the course. Quite the feat for a six-week turnaround!

H Unity was the software of choice when it came to needing a real-time 3D engine to help the team move the virtual furniture around and tweak the camera

There was an awful lot of testing. We intentionally hired the studio for six weeks, where we built the set, rigged the projectors and moved in the whole animation team. So we could live, work and test throughout the whole process. This enabled us to get quite experimental, try lots of different things out, see what worked and what didn't. It was great fun!

3DA: *What were the technical challenges involved with real-time projection mapping?*
MLF: We had seven HD projectors mapping the space – and that's a lot of data to shift in real-time. One of the big stinkers was lag: when the real camera moved, the virtual camera driving the projections would react a split second later, which meant that any fast camera movement would misalign the projected illusion. In the end we worked out a way of adjusting the resolution of the projections based on how close the surface was to the camera. Once we fixed this, our head honcho... Thomas English was free to move the camera as fast as he liked.

3DA: *Can you describe the atmosphere of the final shoot? How many takes would it generally take to get right?*
MLF: We had to shoot three virals in one day! Each of the virals was done in one take, but it took about 15-20 attempts at each one to get a decent result.

On action, we had six puppeteers hitting markers on prompts like '3, 2, 1, explode plastic fruit', and 'shark on the radio-controlled car'. Animations were triggered live so we could account for a certain looseness in timing and pyrotechnics.

3DA: *Now you've tackled this, what do you have your sights on next to further push the boundaries of projection mapping?*
MLF: We'd really like to take the technology and use it for an installation rather than for virals. We think there is a lot of scope to do something amazing!

3DA: *Can you tell us about the success of the project and what impact that's had on the MLF collaboration?*
MLF: There has been an amazing response to the videos online and some quite incredible and varied job offers in 2012. Ultimately, it's all about our working process. Our mantra is you're only as good as your next project.

The proof is in the stats

The fruit of MLF's labour has totted up some impressive statistics online:

- 600,000 views in two weeks
- Trending on Twitter for three days
- Shared 1.2 million times
- Ranked most-viewed YouTube video in the Technology category
- One of the most viewed projection-mapping videos ever
- Increased clicks to the Vodafone store by around 500 per cent!

"This was proof of the viral potential of these kinds of creative new tech experimental projects, and I think doing something innovative has a lot to do with the attention it gets," says MLF. "Since that project our inbox has been peppered with requests like 'We want to create something that nobody has seen before!'"

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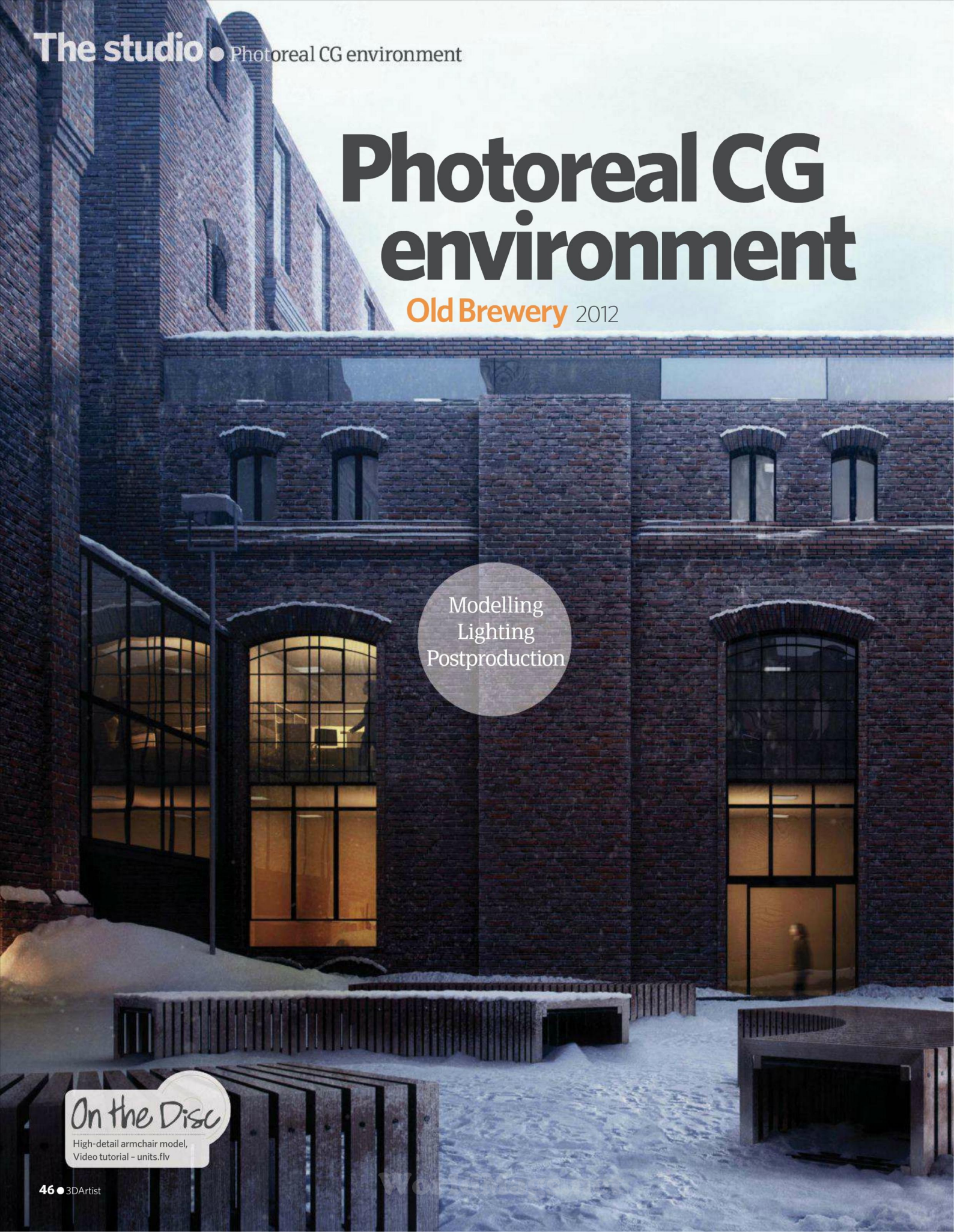
Photoreal CG environment

Old Brewery 2012

Modelling
Lighting
Postproduction



On the Disc

High-detail armchair model,
Video tutorial – units.flv

> The Old Brewery represents the revitalisation of [an] existing building complex in the city of Gdansk, Poland. My brief was to show the project in a natural, seasonal setting with a stylish and photorealistic finish

Pawel Podwojewski is an architect and CG artist based in Poland. He's also the owner and founder of MOTYW studio that specialises in architectural visualisations, and CGWORKSHOP – services and training programs for CG artists

In this tutorial you will learn how to create a winter and autumn scene for architectural presentation. We will focus on lighting systems, shader creation for key elements of the scene as well as snow modelling. You will find out how to optimise your winter scene to keep low rendering times with high-quality results. We will also take a look at particle flow to create snow without any plug-ins.

A client, PBGÓRSKI, required a set of images for its newest investment. The architects provided rough sketches so we had a lot of freedom while creating the scenes. In most cases commercial visualisations are presented in a sunny and warm environment. Our goal was to achieve an attractive look using different forms of expression like snow, wind, late autumn atmosphere and so on. Such solutions have to be presented in a gentle way that most people will perceive as inviting and attractive.

This image's creation required 3ds Max 2011 for modelling, V-Ray for rendering and Photoshop for postproduction. Some of the snow details were created with the SnowFlow plug-in (**www.zwischendrin.com**) and UVW templates with use of Texporter (free for download at **www.cuneytozdas.com**). Final snow detailing has been enhanced with a script from Herman Saksono (**http://www.scriptspot.com/3ds-max/scripts/advanced-painter**).

Concept

Having a lot of freedom in this project, I decided to create a winter and late autumn environment. The client expected attractive renderings, so turning the cold and unfriendly weather conditions into a unique and inviting form of expression was the biggest challenge I faced here.

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Pawel Podwojewski

3DArtistonline

Username: simonhc

Personal portfolio site
www.be.net/simonhc

Country Poland

Software used
3ds Max, V-Ray, Photoshop

Expertise Pawel specialises in lighting and postproduction techniques. His passion is also in environment creation

Software used in this piece

3ds Max | V-Ray | Photoshop

Final image originally commissioned by Przedsiębiorstwo Budowlane Górski

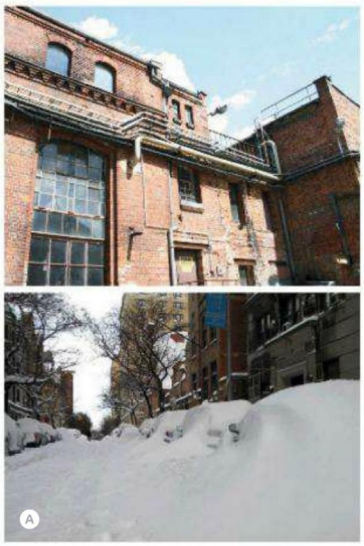
Project organisation

Collect reference material and model the main elements

01 Reference images Before I began the modelling I studied reference images to help me better understand the existing on-site conditions and adapt new ideas in 3D form. The client's wish was to emphasise the old building structures in each shot. Reference images gave me an idea about the materials I needed to create and how the textures would look and react in the light. I didn't have winter shots from this location, though using **www.shutterstock.com** resources I built up my reference library. I decided to create the main snow area by using editable poly techniques and enhancing the details with custom-painted textures for shaders and displacement A.

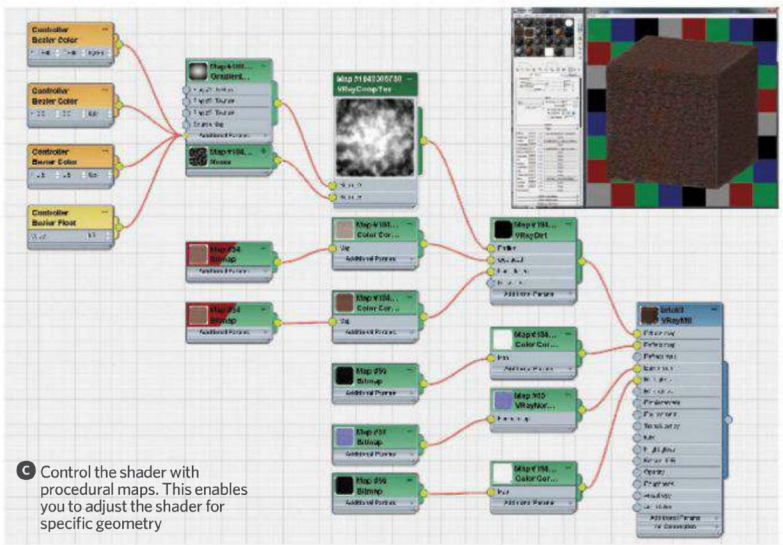
02 Model the buildings In this step it's important to think about the level of detail. Elements that will be close to the camera will need more details and will require more polygons. However, for the second and third plan, you can use less-detailed models to save memory and rendering times. This will also enable you to work more comfortably in the Viewport since the GPU will be less stressed. For modelling I used CAD blueprints. It's important to correctly set the Units System in Preferences and also remember to check the units provided by the client's CAD files. In this case I used metres in max setup and had to rescale while importing the DWG files to centimetres. See the video on the disc for a more detailed unit setup B.

03 Mapping and basic materials In this project the brick shader was very important because almost whole building facades are made of this material. I decided to prepare a shader that would use procedural techniques. This gives you more control over the material reactions for specific geometry, and by copying the material and just tweaking the setting inside 3ds Max, you can easily and quickly create a few random-looking shaders. As you can see on the material preview, I used V-Ray Dirt to affect edges in a horizontal direction and make them brighter than the inner part of the geometry. To do so you need to tweak the X,Y bias in V-Ray Dirt and also check Invert Normals. For better control on the dirt distribution I created a V-Ray Comp texture for the Radius slot (see the scheme) C.



A References help understanding of the material structure and plan the modelling technique

B Scene overview: note that elements further away have less detail



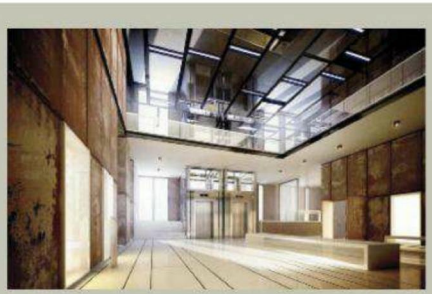
C Control the shader with procedural maps. This enables you to adjust the shader for specific geometry

Artist Showcase

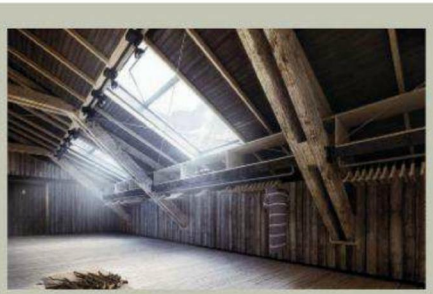
Pawel Podwojewski

MOTYW studio is (based in Gdansk, Poland) specialises in architectural visualisations and has co-operated with companies and architects from all over the world.

Leading artists:
Pawel Podwojewski – founder, owner, lead digital artist
Dmitriy Belozertsev – 3D modelling artist



Nanotechnology Lobby **3ds Max, V-Ray, Photoshop (2011)**
A competition piece for the Nanotechnology building at the Technical University of Gdansk with FORT studio. One of my tasks was to design the interiors.



Quiksilver in Chamonix **3ds Max, V-Ray, Photoshop (2011)**
One of the images created in partnership with NADAU LAVERGNE studio for a Quiksilver shop located in Chamonix, France.

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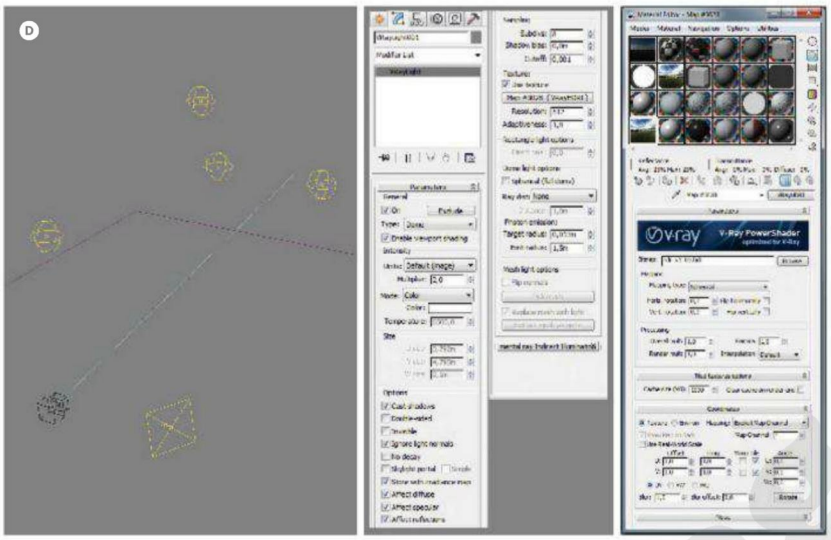
Dusk lighting

Crucial scene illumination to find the perfect balance



04 Set the dusk lighting Choosing a proper lighting system will determine the final image quality. A Dome Light has been chosen as the main source here with an HDRI as texture. The HDRI has been purchased from **www.viz-people.com**. A simple but efficient lighting system guarantees good quality illumination and relatively low rendering times. Interior lighting has been reduced to a minimum and I used V-Ray spheres placed randomly in the rooms. For lower rendering times I checked the Store With Irradiance Map option. This means a part of the light calculation will be performed while IM computing.

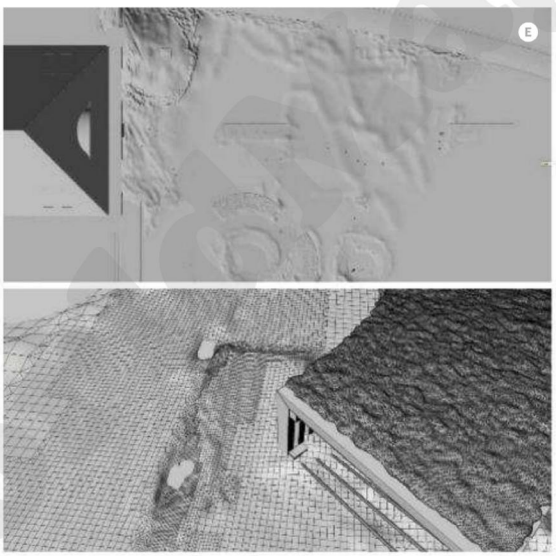
The GI calculation process will be naturally extended but the final rendering will be shorter and here you can gain a lot of time D.

D Start simple with scene evolution and add more light sources

E Use the Push And Pull option in Edit Poly for snow detailing

F A Texporter template will help you to paint custom textures for whole ground elements

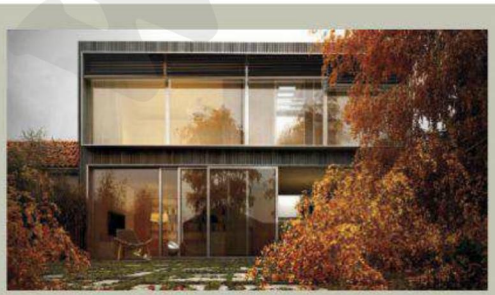
05 Basic snow modelling In this step we will create a basic mesh for the snow ground element. Start with a low poly mesh then add more divisions the in places you want to have more details, for example areas of hills and valleys. This will help you to save polygons and work on the finer details only in the most exposed parts. Use the Soft Selection tool to create distortion on the ground. When the basic shape of terrain has been defined start the detailing with the Push And Pull option in Edit Poly. I used a tablet for better control and ease of use E.



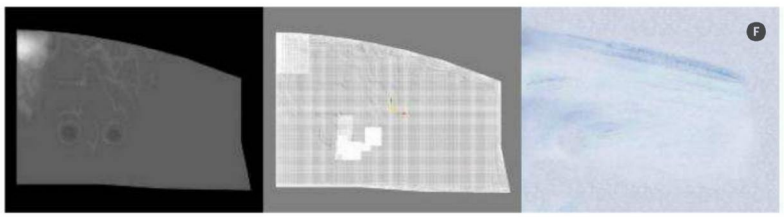
Problems and solutions

Lighting in a dusk scene is specific and usually requires longer rendering times than day shot scenes. We have to face a few basic problems like lower sampling for GI, possible artefacts or high noise in shaded areas. After many attempts and executed projects I can suggest that in most cases using Dome Light for the ambient light is the best solution. The settings of Dome Light with LDRI or HDRI and GI+ Environment HDRI may look similar but there is a huge difference in results. Dome Light generates direct rays only and uses Importance Sampling. This technology enables us to calculate accurate caustics and shadows. Dome Light also means you avoid producing stains.

Comparing the rendering times and results, Dome Light is much more efficient than Environment HDRI lighting which requires higher sampling for IM. While using the Dome Light remember to disable the GI Environment Override options in V-Ray's Render Setup. You can use a different texture than in Dome Light if you check Invisible in the Light Modify panel.



Single Family House **3ds Max, V-Ray, Photoshop (2011)**
Architecture designed by NADAU LAVERGNE studio. A small scene that required high details such as custom plants and an autumnal atmosphere. Glass shader and ground shaders were adjusted to simulate an after-rain effect.



06 Snow mapping and texturing The snow material was a challenge. I started with a fast SSS material, which gave good results but the rendering times were very long. In this case I decided to paint custom textures to speed up the final output. I applied a planar UVW with 1:1 ratio that covered the whole ground element. Using the Texporter plug-in I created a template with a depth map, with greyscale gradation of height, which gave me a good idea where the geometry would be placed for the valleys and hills. Using textures from **www.cgtextures.com** I painted a custom map for the whole ground element and also painted maps for displacement and reflections. Again, use of the tablet was very helpful F.

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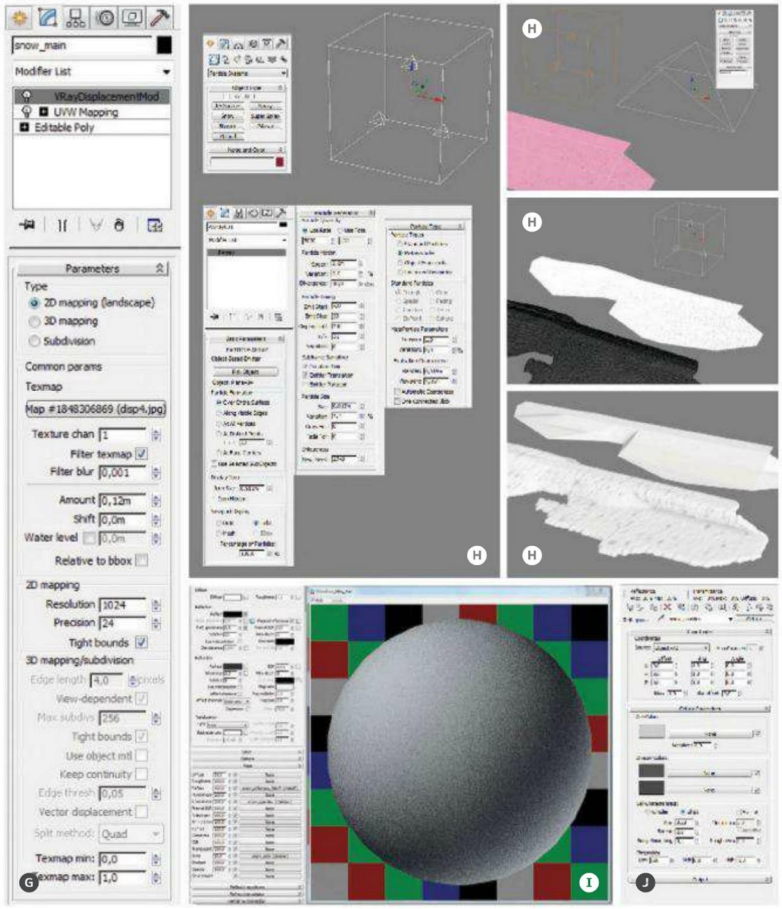
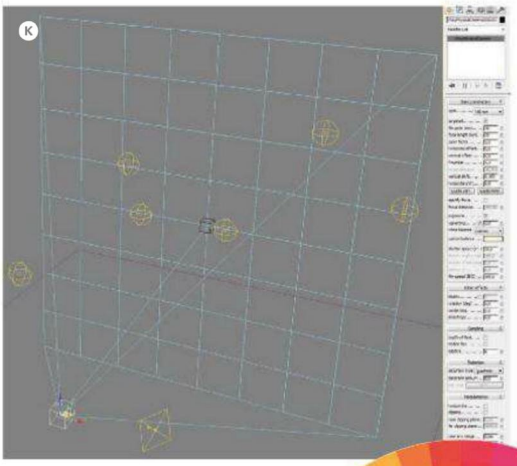
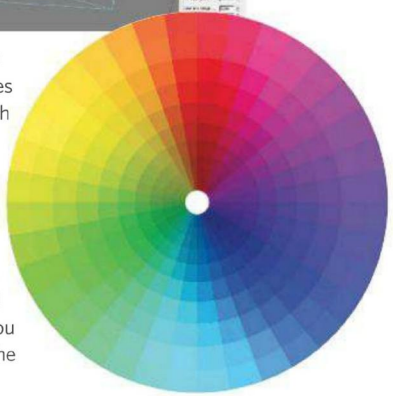
Camera and render setups

Prepare your scene for a dusk shot

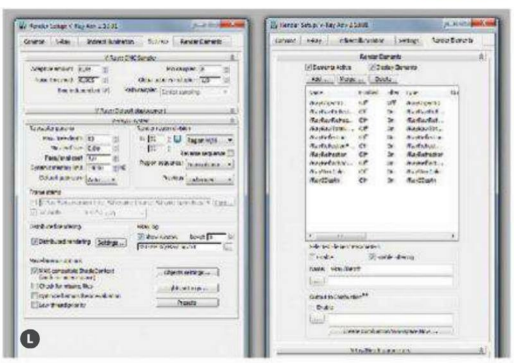


07 Apply details for better results Fine details on the snow ground were achieved with the V-Ray Displacement Modifier. The custom painted map in high resolution enabled me to add very gentle details in desired places G. Elements like railings or benches were covered with snow with the SnowFlow plug-in, but you can use PArray and mesher H. SnowFlow also provides predefined materials I. For snow elements on distant detail I used a simple white material with a cellular map in the Reflection slot J.





08 Set the camera for a dusk shot Dusk images usually have a blue tint. For such effects in the V-Ray's Physical camera you need to adjust the white balance. To understand better how white balance works, take a look at the Color Spectrum wheel. If you choose an orange colour the image will be tinted in blue. This means you need to choose a colour from the opposite side of the wheel K.



09 Render setup for dusk shot This scene has a classic GI setting with an Irradiance map for primary bounces and light cache for secondary bounces. The image sampler was set to Adaptive DMC in order to receive more accurate results while calculating small details and elements.

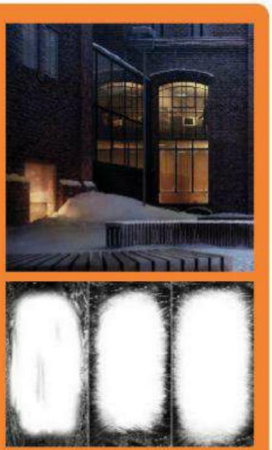
For the Antialiasing filter I chose the Mitchell-Netravali algorithm. It's important to render and save extra render elements we can use later in postproduction, such as the Z-depth channel for the depth of field effect or a Refraction filter to mask out the interiors and control the light colours inside of them L.

H Cover elements with snow using PArray

K Set proper white balance to get the desired tint on your image

Create hoarfrost on windows

Winter scenes are very interesting, but to make them look plausible we need to work more on small details. Glass elements can be covered with ice. When you are working with complicated windows it is important to make it different for each window. This may seem to be time absorbing but in fact there is a way to make it quick. All you need to do is to paint a few white frost textures and use them as a refraction map for a glass shader. Create a Multi/Sub-Object material with a few glass shaders with different refraction maps. Add UVW mapping for the windows and set it to Face. In the end apply a Material By Element modifier. You can control the probability for each glass shader contained in the Multi/Sub-Object option by tweaking the modifier's settings. This little trick can enhance your winter scenes but you can also use it for rain effects, depending on the maps you use for bump and refraction, or you can use custom reflection maps.



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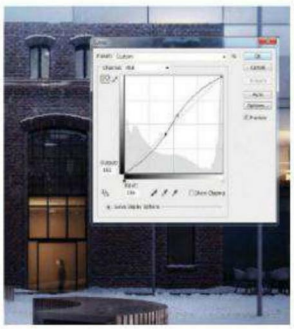
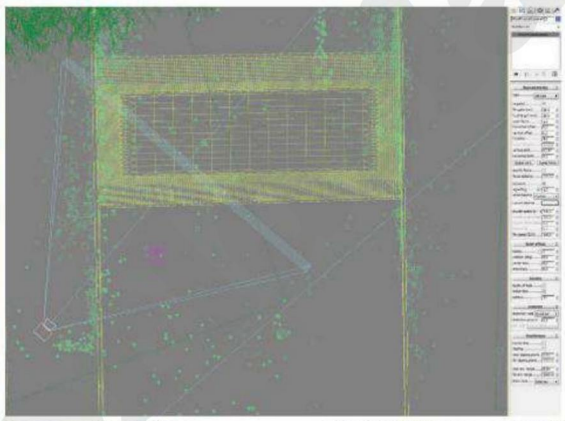
Autumn scene street view

Set lighting and details for an autumn scene



10 Wintery postproduction The post work starts with contrast and brightness correction. I used Curves in the first steps to tweak the luminosity. The Refraction filter channel has been used as a mask to adjust the light colours. The Z-depth channel set to Screen mode and a lowered opacity has been used for environment fog creation. I also painted some snowflakes. To do that I used a brush with Scattering enabled to spread the shapes randomly. In the end a Motion Blur filter was applied M.

11 Composition for street scene Composition is the most important step in every scene creation. There are several rules we can follow, for instance the well-known rule of thirds. To apply this straight in the Viewport I set the safe frames to divide the window into nine pieces (equal divisions in each X and Y direction) N.



L Save extra render elements that can help during the postproduction process

M Use the Z-depth channel to create a fog effect

N When composing the shot remember the rule of thirds

O Tweak the VRaySun settings for soft and smooth shadows

P Scatter leaves on the road with the Advanced Painter script

12 Lights and trees setup The autumn street scene has been lit with VRaySun and Sky. This is the most simple lighting system and has worked very well in this case. To achieve nice and soft area shadows I increased the size multiplier of the sun and also increased the shadows' subdivisions for more accurate shadow calculations (you will receive less noise on the shadows' soft edges). Very important is the light direction. Shadows and light can enhance the depth in the image. Be careful while placing the sun behind the camera, which in most cases results in a flat image impression O.

13 Asphalt material and leaves Urban scenes very often require a good asphalt shader. The key is to find a high-quality texture, then you can create a very basic material with bump or normal bump texture to give a nice structure feeling while being rendered. V-Ray displacement can be a help but will also increase the rendering times. I decided to add extra details in the postproduction process, which will be discussed in the next steps. The Advanced Painter script has been used to scatter leaves on the road. The groups of leaves will slow down the Viewport performance so change their display mode in Object Properties to Box. You can also scatter V-Ray proxies P.

Displacement vs Normal mapping

Good quality structure in rendered materials has a massive influence on the end result of your images. Scene elements like roads or concrete blocks are the best example. V-Ray's Displacement Modifier may be very helpful, but there are some limitations we need to face. The V-Ray Displacement Modifier with 2D option gives relatively fast rendering times and good quality results. On objects that are not a plain surface, though, you may experience problems on the displaced edges. Secondary 3D options may fix that while enabling Keep Continuity, but this may slow down the rendering process dramatically. You can also solve this issue by controlling the Edge Threshold Parameter.

While in many cases the displacement may not be necessary, plug-ins like NDO or Crazy Bump can create normal maps that work very well, providing a great substitute for materials with a gentle structure.

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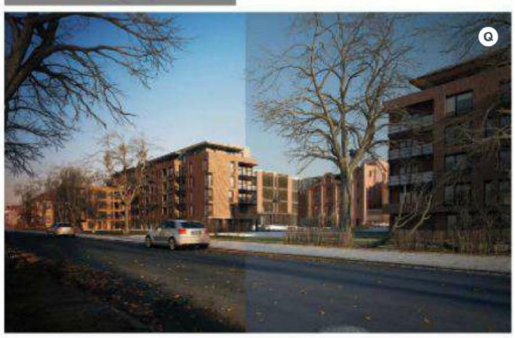
Postproduction tricks for a realistic look

Actions that will save you time and enhance the final results

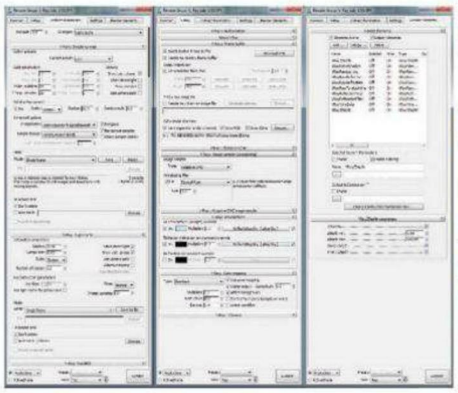
14 Render elements for postproduction The final touches are very important for this project. Inside of 3ds Max I created little details like birds' nests in the trees, with the use of Ivy Generator. I then added these elements inside Photoshop, rendering them only as regions and saving alpha channels. Scattered leaves have also enhanced the road detail level. Colour correction was applied and Curves used for contrast and luminosity correction. A Raw Reflection filter with a mask made with the Refraction filter was used to adjust the glass reflection level Q.

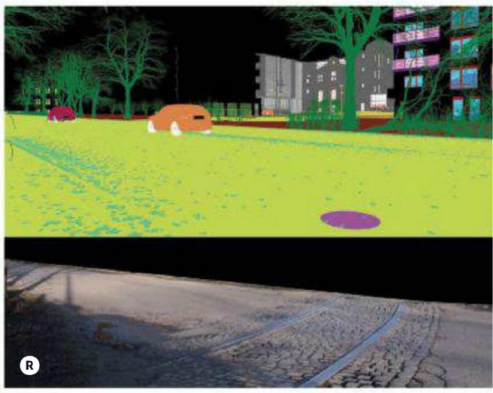


16 Experiment with different blending options The photographs can finally be matched to the perspective using the Transform tool in Photoshop. You can also create a mask selecting the road element with the Wire render element. You can try to adjust the image and use it with a normal blending mode or experiment with other options like Overlay or Pin Light. Nice blending will give better integration of the real photo and rendered image. In my case I masked only the lower left corner of my street S.

S Test different blending options inside Photoshop for better integration

2 hours render time
Resolution: 4,000 pixels



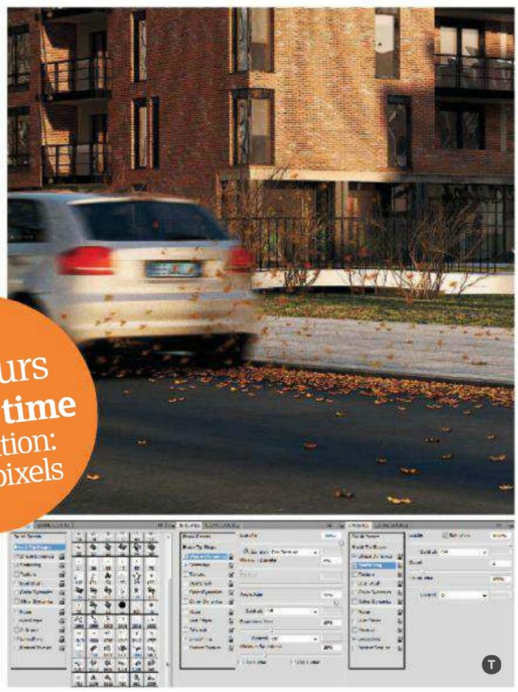


15 Find real-world reference textures I didn't want to spend more time in 3D space detailing the road so I decided to search for reference images I could use in the final matte painting. Make sure you shoot the pictures with a similar angle to be as close as possible to the scene perspective. Once the camera was set, I made a print with Wireframe that I could use as a reference while in the field. Make a note of the parameters of the lens you have set in the virtual camera and the height from the ground R.

Your tools for postproduction

The postproduction process is a very important step. It does not matter if you are working on a 3D still or animation, well-prepared masks will help you to enhance the images and mix them with photographs or recorded footage in a natural way.

In my opinion it is important to use tools that enable you to be precise but also have a lot of freedom while painting. Tablets or pen tablets are very helpful, not only in postproduction but also in 3D modelling. The discussed snow geometry was detailed this way, with pen pressure control. I could much easier shape the desired forms, saving a lot of time, which is very important in commercial work.



17 Final details In the last step we need to take care of details we can add in 2D space. The effects of falling leaves can be created with a regular brush in Photoshop. All you need to do is set the brush scattering and tweak the settings inside like Jitter and Spacing. These painted details will be added in the middle or background, however this retouching will make the image much more natural looking. In the same way you can add dust to the fog or even rain effect T.

Q Use the Refraction filter from the Render Elements menu as a mask to control glass reflection level in postproduction

R Take pictures that will help you during postproduction

T Use the Scattering option to paint falling leaves or dust

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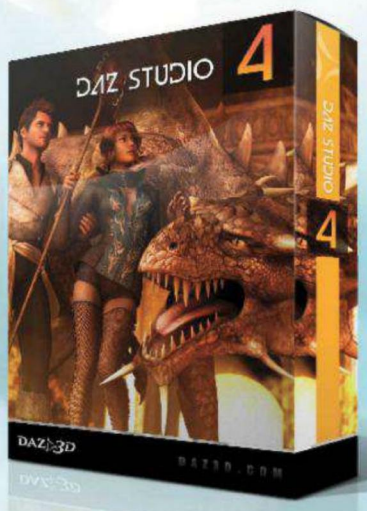

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Artist info

artefato23 agência digital

Artefato23 Studio

3DArtistonline

Website www.artefato23.com.br
www.eduartchne.blogspot.com
Country São Paulo, Brazil
Software used
Softimage, 3ds Max, Photoshop

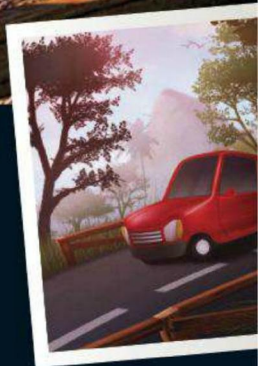
Software used in this piece

Softimage | 3ds Max | Photoshop

"Modelling was done in Softimage and 3ds Max 2012. The main objective was to retain the concept's charisma and keep a clean mesh"

Go camping 2011

We made this at Artefato23 Studio during some free time. The image is inspired by our love of camping and the outdoors, as well as the work of Pixar, DreamWorks and Blue Sky Studios. We love the art these big-name companies produce and it's a pleasure to make scenes that stimulate us to study such fantastic styles!



"The concept of the initial scene was a very different proposal from the final in terms of colour and lighting. During the process, my art director Diego Loza and I decided to change the scene for a more fantasy-style image"

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"The trees were a challenge because it was the first time I'd ever created something like that. When it came to the leaves, planes were used for texture transparency"

"The background was digitally painted in Photoshop. Sky image references were used for the colours, and brushes for clouds, trees and birds. The rendering was then combined with the background painting in postproduction"

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Sculpting with ZBrush

Odin 2011

> My aim was to create a bust of a powerful Viking in ZBrush with a traditional, sculpted finish

Ovidiu Voica, is a character artist based in Romania

I've always admired Alex Oliver's photos (www.alexoliver.com.br) of real, sculpted warriors and the expressions he adds to them. I wanted to create something with a similar look and feel to traditional sculpts, but using the power of 3D software.

Since I'm a big fan of Vikings, I decided to build the ruler Odin – a god featured in Norse mythology. I tried to capture the power of the character using ZBrush, V-Ray and Photoshop.

DynaMesh, a new feature added in ZBrush 4 R2, really helped with this project. It meant I could start from a sphere, changing the appearance as I wished, without any concern for topology or needing a lot of geometry to add form and detail.

Meanwhile, probably the biggest challenge throughout this task was making the chain mail without needing to retopologise and UV the character's chest. I managed to resolve that, which I explain in the tutorial, but I still consider that retopology and UV with NoiseMaker would be faster and more accurate. Another challenge was to get the render deconstructed in passes so that I could reconstruct it as I wanted to in Photoshop. I overcame this by using a multichannel EXR and the ProEXR plug-in.

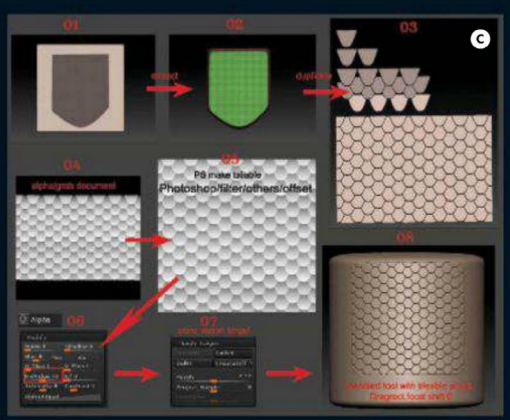
Overall, this project was a great test of my speed-sculpting skills; however, it has also inspired me to model in clay more often.

Concepts

Rough ideas to design the model

01 Character concept I started out in ZBrush with a ZSphere to make a quick sketch of the head. I then added the torso and continued to adjust the proportion and overall feel of the character. ZBrush's new DynaMesh feature really helped in this aspect, as it gives you so much freedom. You can add, subtract, deform and expand volume – there really is no limit. You can manifest your imagination freely, which means being able to test ideas without being constrained by technical issues A.

02 Reference Once I had the shape blocked out, I referred to lots of reference images to ensure this Odin had the right look about him. I wanted to add chain mail onto his torso, so I began masking the area where it would appear B.



03 Chain mail To make an imprint on his chest, I needed an alpha with a realistic armour pattern. I masked the contour of a chain mail piece on a polymesh plain, then extracted that and duplicated it until I obtained the pattern I wanted. When I had achieved this I grabbed the document in the Alpha palette and exported it to Photoshop where I used the Offset filter to make it tileable C.

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Concept
Sculpting
Compositing
Texturing

Software used in this piece

ZBrush | V-Ray | Photoshop | Maya

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Ovidiu Voica

3DArtistonline

Username: OvidiusTiberius

Personal portfolio site
www.voicaovidiu.com

Country Romania

Software used ZBrush, V-Ray, Photoshop, Maya

Expertise I specialise in character and creature art. I really enjoy quick concept modelling with ZBrush

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Artist Showcase

Ovidiu Voica

I am a senior character artist who has worked on various 3D films, commercials and for Ubisoft Romania in the past. I love character and creature design, modelling, texturing, as well as concepting in ZBrush.

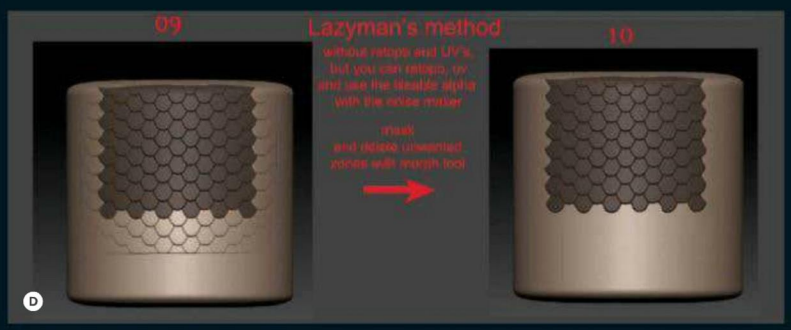
***Grace* ZBrush, V-Ray (2011)**
Grace is a personal project of mine. I visited the Orsay museum while I was in Paris and its many classical marble sculptures really inspired me, so I decided to make a virtual sculpt in this style.

***Alien Female* ZBrush, Photoshop (2011)**
I like to experiment with creature concepts. *Alien Female* is a result of one of these sessions.

***Bolthazzar* ZBrush, Maya, Marmoset Toolbag (2011)**
This was my entry to Dominance War V. I worked on this character a lot, but it ended up achieving 19th place on the Game Artisans website (**www.gameartisans.org**). I think the concept was not very clear or very original. It ended up being a good lesson for my future works. Don't start a project without your own concept, unless it's to practise a particular technique, because it pays to be original.

Alphas and imprints

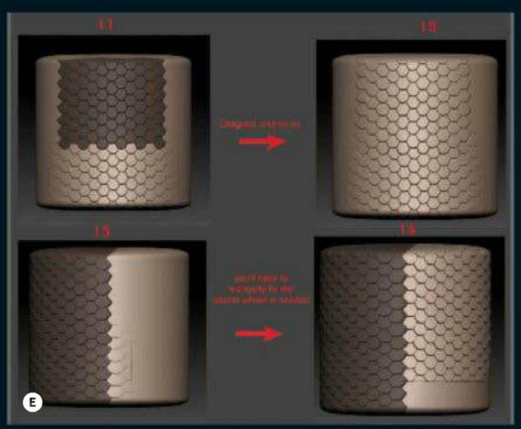
Finish the chain mail, begin the helmet



D

04 Import the tile into ZBrush

I reimported the result from Photoshop back into ZBrush as an alpha, setting the MidValue in the Alpha palette at 50. I stored a morph target and began imprinting it on the model. I used the Standard tool with the newly created alpha and also masked the boundaries of the model and deleted the unwanted pattern with the Morph tool D.



E

Experiment and explore

I didn't plan any details or realistic shaders for this work. It was intended to capture a certain type of personality and to manifest some grade of virtuosity. I think that real flair is scarce nowadays – everyone tends to be a master in technique but they neglect the passion of modelling, the passion that deforms matter.

You can develop this side of your skills with some real clay modelling experience. Getting contact with the very material you are working with, albeit digitally, develops new instincts related to ideas.

05 Apply the chain mail

Once the edges were clear, I continued dragging the new alpha around to cover the surface. I used this approach several times until the chain mail was finally complete E.

06 Create the helmet

The helmet was made by first sketching it out, then using the Trim, Polish and Clip brushes to give it a hard-surface look. Once modelled, I decimated the mesh and exported it to Maya for rendering with V-Ray F.

F

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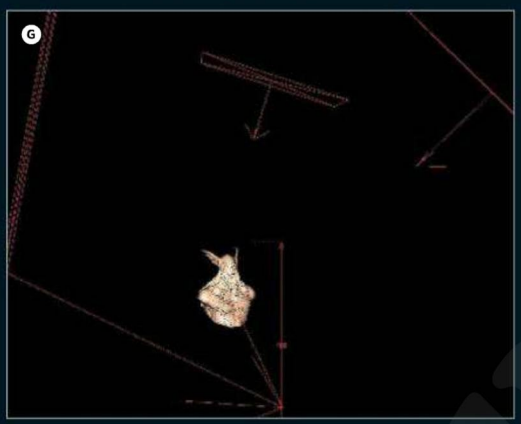
Must-have tools

I think anyone starting a speed concept model should first of all be courageous. I use ZBrush's ClayBuildUp a lot and I think everyone should use it for being fast and clear in the process of form construction, and eloquent when it comes to defining the surface as big chunks of geometric volume. DynaMesh is vital for digital sculpting too.

07 Apply lighting in Maya I created three rectangle lights in Maya and played with VRayRT to block out the lighting. I scaled the model to be at real scale as V-Ray calculates everything in centimetres. For the render options I used the Nederhorst Settings. For the material I simply used a VRayFastSSS2 material with a marble preset and a few tweaks. For more insight on this subject and inspiration visit **www.3dlight.blogspot.com** G.

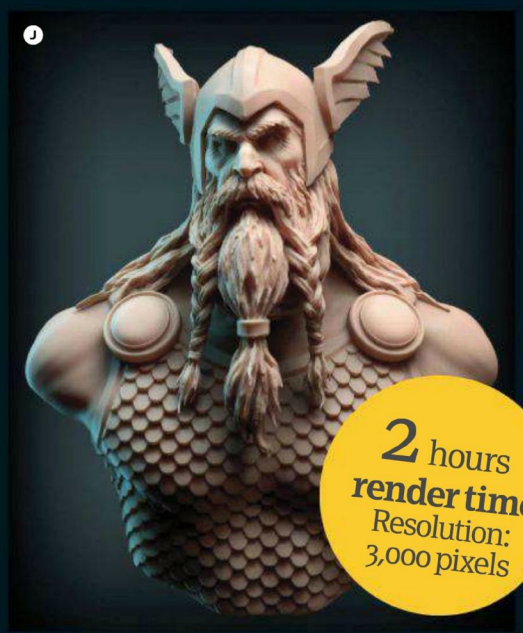


08 V-Ray render settings I set up V-Ray to save the render file as a multichannel EXR. This way the render elements would appear directly in the EXR image. I set V-Ray to produce many render passes but in the end I only used the Beauty render, Light Select for every light and V-Ray Dirt via Extra Text H.

The final stages

Move on to compositing and rendering

09 Details and more passes For getting the EXR image in Photoshop I used the ProExr plug-in, which is amazingly useful. On top of the beauty pass I added (Linear Dodge) the light select passes and on top of those multiplied the V-Ray dirt pass. I then played with the hue, saturation, levels, layer opacity and exposure to get the end result I wanted. Keeping in mind that EXR are HDR images, you can play a lot with them using exposure and levels as there is plenty of information for that I.



10 Final render I needed the final image to be a minimum of 3,000px. Although it took a while to render, the result surprised me as the SSS and Gi components were better represented in the image. I think from now on I'll render the final images at twice the resolution and reduce them in Photoshop J.

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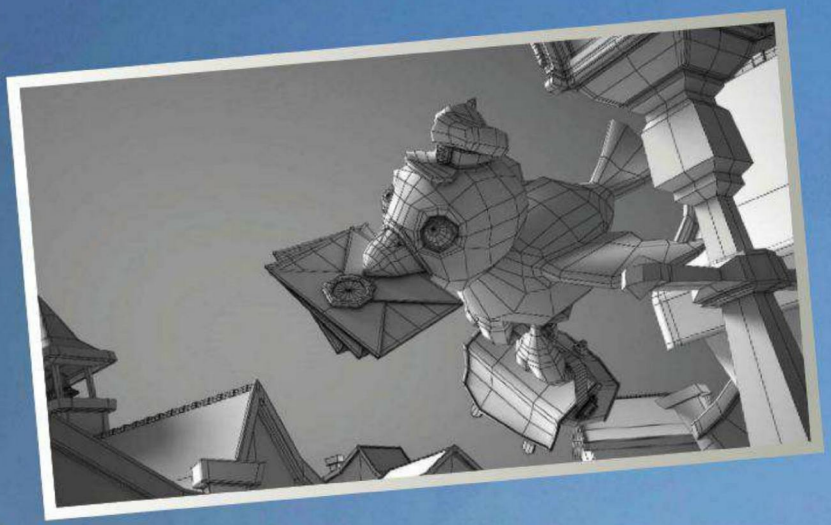
I made this...

Incredible 3D artists take us behind their artwork

Artist info

Andreas Böhler
3DArtistonline

Website www.andreas-boehler.de/en
Country Germany
Software used 3ds Max, V-Ray, Photoshop



> When everything is ready, I render the final image with several render passes for postprocessing. Depth of field, grain, vignetting, colour correction and some minor tweaks are then done in Photoshop

Software used in this piece

3ds Max | V-Ray | Photoshop

Carrier Pigeon 2011

This is one of those scenes that are formed during the process of creation. I had the idea of a pigeon character, which was originally planned as a small banner for my portfolio; however, I had so much fun creating this that I just had to take this idea a step further.

> I find clean topology key, it helps a lot when you have to add details and you want to rig and animate a character. I find a good approach is to start out with basic forms and add details as needed

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“I usually draw quick character sketches and lay out a mood board for a new scene. I'll then come up with a suitable environment for my models and characters. This is very important – as are good materials and lighting – as it breathes life into characters and gives them a story to tell”

“Since I'm quite critical of my own work, I'm always able to find things to change and improve. There's a point when you have to let go, though. Speaking from personal experience, it helps a lot to let other people check your work from time to time”

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Software used in this piece

Vue

Distribution
Lighting
Rendering

On the Disc

- Free full copy of Vue 9 Frontier, worth $99, courtesy of e-on software and Cornucopia3D
- Full Vue Scene with materials, atmosphere, render settings and all objects included.

A Add a single-blade plant and animate its wind parameters to give it a slight curve at zero seconds

B Animate the wind parameters again, this time at three seconds to the maximum curvature you want

C Add a standard terrain and use the Old Rock material as displacement to create overhangs and caves

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Underwater landscapes

Aquatic Vue 2012

Create idealistic and realistic underwater environments in Vue

Conrad Allan is a freelance environment artist and matte painter

In this article we'll be covering advanced techniques for creating scenes in Vue. While we'll be building an underwater scene, the techniques you'll learn are easily transferred to many other, above-ground creations in the software. First we'll be preparing a plant to use as our seagrass where we'll use the animation phasing to make the plant look like there's a current flowing through. Next we'll look into using terrains in a unique way, to get rock overhangs in our ocean scene for coral to grow on and fish to swim through.

Veterans of Vue will understand rendering underwater scenes in it has always been a challenge. The ocean material is easy enough to set up initially, but render times can often be huge and lighting settings sensitive. With the advent of Vue 10 came a new physical water system. It meant relearning the entire water-rendering experience. Hopefully by the end of the article we will have removed the shroud in your understanding of the new physical water system.

We're covering a lot of elements and have a lot to get through, so buckle up.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Conrad Allan

3DArtistonline

Personal portfolio site www.extremeprojects.com.au

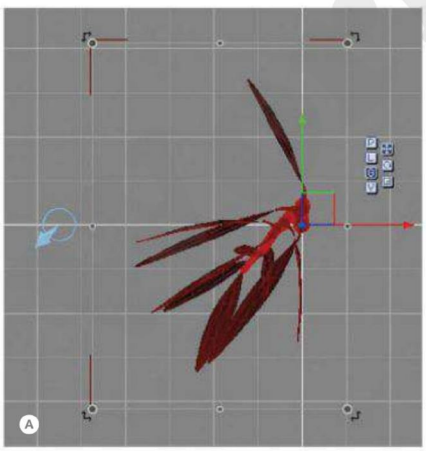
Country Australia

Software used Vue

Expertise Using World Machine to create highly realistic terrains for projects and creating environments in Vue for matte paintings and full 3D animations

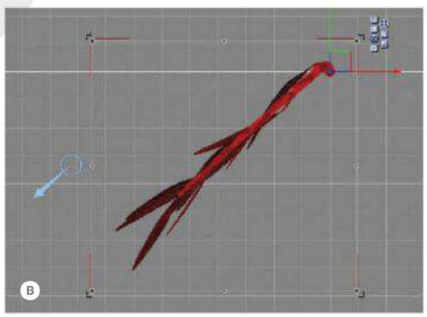
Set your scene

Prepare for the animations



A

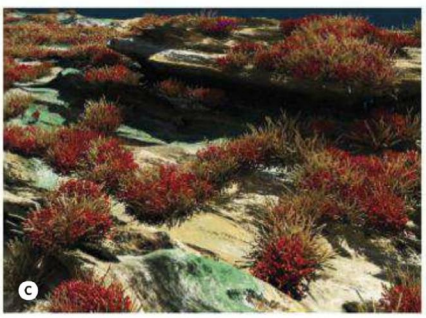
01 Animation preparation We need to prepare a grass file before we can use it in our main scene. Add an Acacia Tree Seedling plant and turn on the Timeline (F11). You can cancel out of the animation wizard, but this won't help us. Make sure your current time is set to 0 and drag the wind control (the blue triangle next to the plant) so it is just out of its middle point A.



B

02 Timeline and grass bend Now we have our initial plant and animation start position, move the Time slider to 3 seconds and drag the blue triangle even further to create our maximum bend in the grass. Make sure to drag the triangle in the same general direction, as we don't want to have the grass bend back on itself or turn in a different direction.

Next, go to 6 seconds on the Time slider and copy the initial frame setting to the end. With the plant selected, hit Cmd/Ctrl+Shift+B to open the Animation toolbox and set the Repeat Mode to Loop. Finally save your object as a VOB file B.



C

03 Create the base terrain Open up a new scene and add a standard terrain. We'll need to smooth it out by using the Diffuse and Wind erosion effects.

We're going to take a different approach to normal for creating our underwater terrain. Load the material Old Rock and in the Bump tab, enable Displacement. If you render now you'll notice the terrain should look something like the image for this step. Now is a good time to play with the depth of the bump to increase the displacement and the smoothing slider. Try setting the Depth to 0.4 and Smoothing to 50% C.

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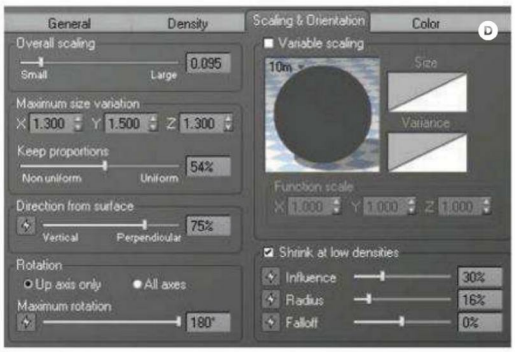
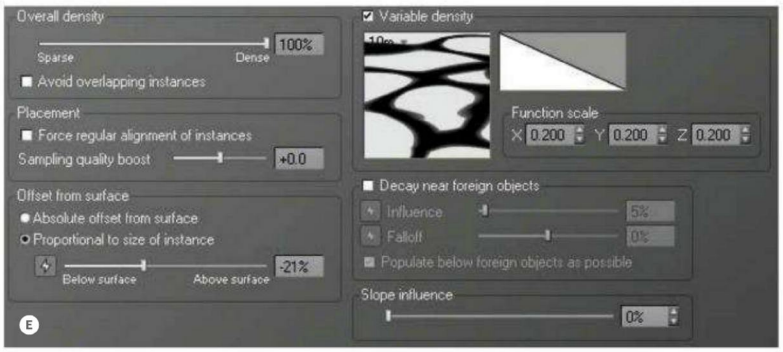
Advanced ecosystem distributions

Create and control the plant life of the sea floor





04 Coral ecosystem On the terrain we've just added, edit the material and add an ecosystem layer. On this add two types of aquatic plants: Red Coral and Anemone, increasing the presence of the Anemone to 2. In the Density tab, turn off Decay Near Foreign Objects and turn the Density up to 100%. Depending on the size of your scene you'll need to turn down the overall scaling (in the next tab). For my scene it is set to 0.095. Turn the maximum X variation to 1.3 to give some variation in the sizes of instances. Finally in the Presence tab, change the Maximum slope to 45 degrees D.

05 Basic seagrass ecosystem Add another ecosystem layer, ensuring it is below the previous one in the list. Add the animated grass object we created earlier, setting the Scale to 0.8 and Density to 100%. For scaling, set the Overall Amount to 0.5 and the Maximum rotation to 0 degrees. We need all our instances to line up. Also, change the Direction From Surface to 50%, this will make the instances tilt a little with the terrain.

Finally, ensure the Presence tab of this layer is set to the maximum. For the desired effect we want this grass to appear at all heights and slopes E.

D The settings we used to create the variations in scaling of the coral ecosystem

E The density settings for our seagrass. The distribution fractal is created in step 7

F The Animation Offset tab enables us to create sweeping currents through the grass

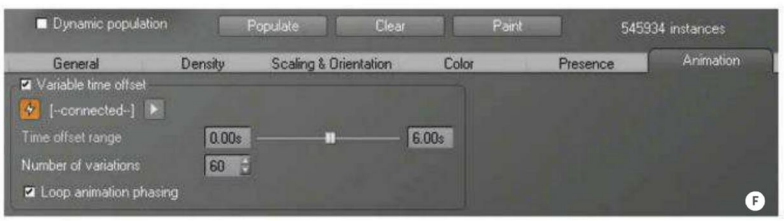
G The distributions cause the grass animation to offset. This will look more realistic under our ocean

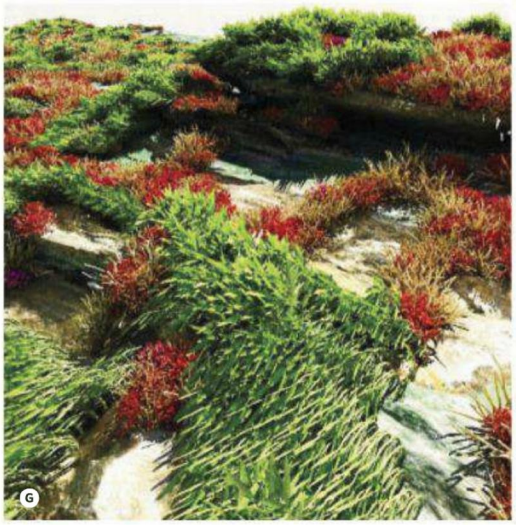
Problems and solutions

Dealing with ecosystems can sometimes be time consuming. If you're trying to get your distribution patterns correct, increase the scale of your plants temporarily. This will save you time when populating as there won't be so many instances. I try to avoid using dynamic populations because they tend to take longer on the first render than their static counterparts, but using a static population will use more RAM so be aware of this. Make sure to only populate ecosystems you need to work on, saving your memory and test renders.

This segment of the tutorial covers a lot of advanced techniques. As such, you should check how your ecosystem looks at each stage, this will help you learn more about the effects as well as ensure you're on the right track. Each scene is unique, you'll have to check the scale of your fractals as they may be too big or too small.

If in doubt, check the scene file on the disc for reference, you'll be able to cross check your scene with mine.





H Using a hyperblob, we can create brain coral by controlling and filtering a standard density fractal

I Mix materials to create brighter areas at the tips of the coral

L By setting the lighting model to Global Radiosity we can control it better

M In the Sky, Fog and Haze settings we can control the light to darken areas of our image

06 Create currents To control the grass to simulate sea currents, head into the Animation tab and tick Variable Time Offset. Set the Time Offset Range from 0 to 6 seconds and Number of variations to 60. Tick the Loop Animation Phasing box. Now we need to set how the current appears, so click on the lightning icon next to the Random option to bring up the Function Editor. Here, replace the Constant Node with a Noise Node and set it to a Perlin noise with 0.5 scale. Again, depending on your scene, this scale may have to be tweaked F.

07 Distribution of seagrass Currently our seagrass will appear everywhere on our terrain. We don't want this. In the Density tab, tick Variable Density and edit the function. Add a Noise node and set the type to Sparse Cracks. Change the Scale to 3, Wavelength to 3 (X,Y,Z) and the Crack Width up to around 0.22. This will create big sweeping black lines for our ecosystem to grow on. Add a Smooth Threshold filter and edit it to make the black values stronger. Accept these changes and, back in the Density tab, flip the filter horizontally. This will make the maximum density occur in the black values instead of white. Finally, in the coral ecosystem above this ecosystem layer, set the Repulsion from layer to 50% G.

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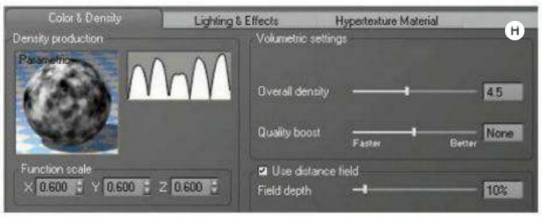
Ocean and lighting

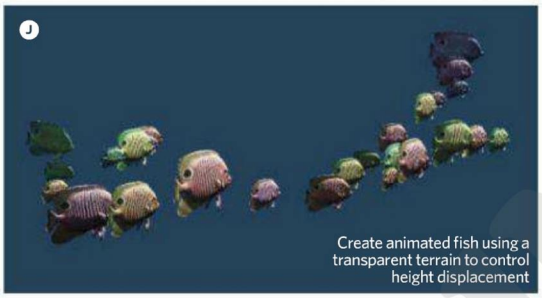
Atmosphere and ocean setup for lighting

9 hours render time Resolution: 2,828 x 3,886



08 Brain coral displacement Add a sphere to your scene and Ctrl/right-click on the Create Metablob Object button to create a hyperblob. Enter the material and in the Colour & Density tab load the Soft Spots fractal preset. Change the filter to a Multi-hill fractal, which will create the high, smooth ridges. Set the Overall Density to 4.5. We don't want holes in our sphere so tick Use Distance Field and set it to 10%. This sets the deepest point to be 10% engraved into the sphere H.

09 Create materials for the coral Next, jump over to the Hypertexture Material and load a mixed material with Old Rock and Old Limestone. Enable Influence of Environment and change the settings so that the limestone material appears on the flat, higher surfaces of the sphere. It'll require a little tweaking but the result should be that the white limestone is on the top ridges of the Coral I.



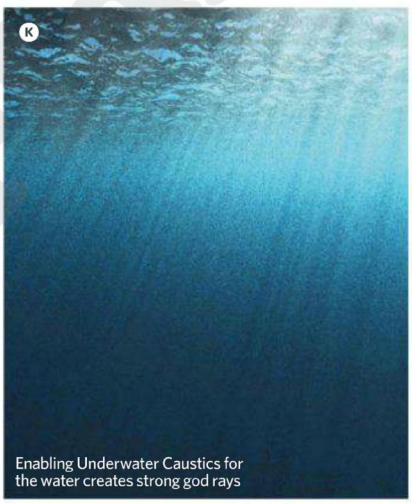
10 Optional details If you want to add a bit of life to the coral system, repeat step 1 but this time with a fish species of your choice and, instead of animating the wind, animate the rotation about 15 degrees and back. Once you have the file exported and have added a terrain, make the material fully transparent and add an ecosystem. On this ecosystem, follow steps 5 to 7 to create the same kind of distribution for the fish. Once populated you can move the terrain to get your fish into smalls caves in the terrain and also erase certain areas of fish where you don't want them to appear J.

Ocean rendering quality

When you come to render your final image, you'll most likely have trouble with the noise in the water, but there are several different settings which can be tweaked to improve the quality. If you are not worried about rendering time, crank the quality of your water material layer to 4. Using depth of field and distance blurring will help immensely. As water diffuses light so much, distant objects can look great if they're blurred out and will also enable you to keep render times low.

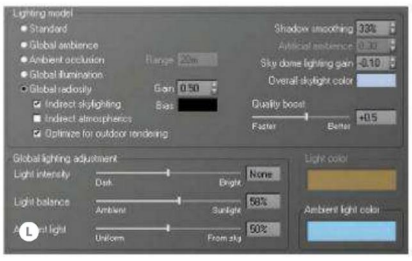
Post effects software like Photoshop, Lightroom and After Effects have some fantastic options for reducing noise in specific areas. Using third-party programs in this way means you can get your image out of Vue quicker and into another piece of software for fixing. Just remember you're not limited to one.

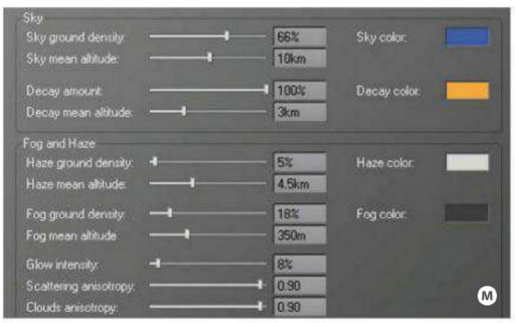
11 Add the ocean We now have our scene pretty much complete with all of the elements present. Before we get the lighting right and change our atmosphere, we need to add an ocean (top-left button). Double-click on the Water plane and check both Displace Water Surface and Underwater Caustics. Next go into the Material Editor and on the Default Water layer – in the Transparency tab – change the Depth to 12 metres and Anisotropy to 0.80. This is all we need to do here K.



12 Atmosphere and lighting It's time to dive into the Atmosphere settings. Firstly, change the Lighting model to Global Radiosity. Bump down the Sky Dome Lighting Gain to -0.10, this is so we avoid flooding the scene with light. Change the Light Balance to around 60%, as this again will help control where our light is coming from a little more.

Last, in order to fill out the dark areas, bump the Global Radiosity Gain up to 0.5 or 1.0 depending on your preferences. This will cause light to bounce onto other objects and will pick up the different colours rather than being flat light L.





13 Sky, fog and haze While these settings don't occur in real life, they will certainly affect our lighting in Vue. There are many tweaks here so check the image or the scene file for more options. We want to increase the Fog and Haze to around 20% and 5% respectively to block more light. Change the Aerial Perspective to 10, increasing the atmospheric scale to fade more of the background M.

The key to realism

Don't rely on your imagination to come up with realistic finishing touches. Study underwater photography and really try to analyse what makes it look that way. Learn where the imperfections are in the image: that is the key to realism. It is all too easy to have clean images in computer graphics so try to reproduce the quirks of photography.

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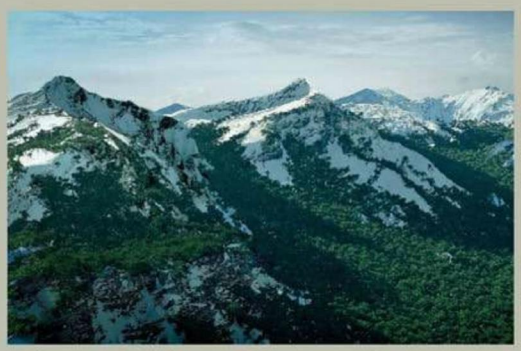
Artist showcase

Conrad Allan

I started my career as a structure modeller for architects. I then discovered Vue and fell in love with the quick results I could achieve. From the very beginning I strove to separate myself from the crowd and achieve the highest level of realism I could with pure 3D scenes in Vue. More recently my work has begun to focus on matte painting for various fields.

Halo: Faith **Vue, Photoshop (2011)**
This was made for an independent short film, 'Halo: Faith'. It is a frame from the finished trailer that aired late 2011. It was made mostly inside Vue with Photoshop colour corrections, compositing effects and addition of the live-action soldier.

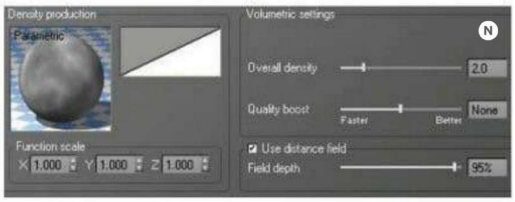


Alpine Matte Painting **Vue, Photoshop (2011)**
A matte painting made in a few hours with Vue and Photoshop.

Costa Rica **Vue (2010)**
Created as proof that the book *Realism In Vue*, for which I was the editor in chief, teaches some great techniques.

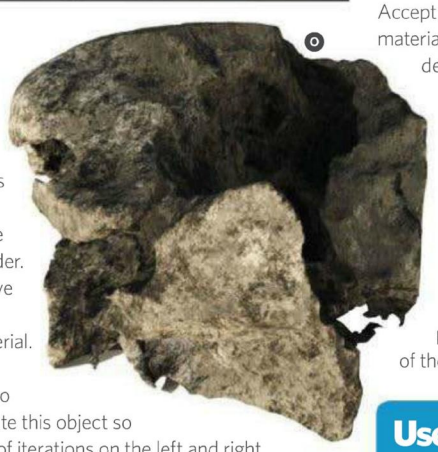
Final touches

Depth of field and render settings



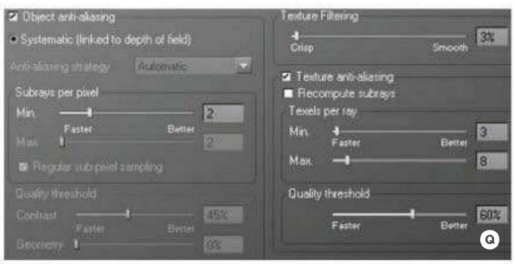
14 Displace the hyperblobs We need to add some framing to our scene. To do this, add a cylinder and Ctrl/right-click on the Metablob icon again to create a hyperblob. Accept the change of material, we'll use this as our default material. In the material Colour & Density settings, enable Use Distance Field, set it to 95% and the Overall Density to 2. This will take some tweaking depending on your particular version of the fractal N.

15 Hyperblob materials Change the material mapping for the cylinder to World-Standard, as this will give variations when we duplicate the cylinder. We need to improve the bump for Hypertexture Material. In the Bump tab change the Bump to -25. Finally, duplicate this object so there are a couple of iterations on the left and right of your image frame and at different distances from the camera. Each instance should look different O.



16 Add a depth of field Underwater photography is not generally strong in depth of field or focal effects, but if used properly, the depth of field will add a nice, slight distance blur.

To do this, select the camera and change the Blur to 7%. Make sure to check the Focus distance as this will set the origin from where the depth of field will begin processing P.



17 Final render settings and options Now we're finally ready to begin our render. To speed up render times we'll be using a custom version of the Preview Render settings. Select User settings in the preset box and load the preview URS file. Check Enable Super-Sampling and also Depth of Field, setting the algorithm to Fast Hybrid 2.5D with 1 or 2 passes. In the Anti-aliasing area check all four boxes and click the Edit button. Change the Texels per ray to Min 3, Max 8 and the Quality to 60%. Finally, set your resolution and hit render Q.

Use Z-depth post rendering

If you're applying depth of field in another software, check your Z-depth before final rendering. Currently in Vue, any fully transparent object will still appear in the Z-depth. It makes sense because you'll want to have the ocean material (for instance) included in your Z-depth. However, if you have chosen to add fish in step 10, your terrain will block other Z-depth details. To get around this, hide the fish terrain from the render (which will hide the fish too) and do a second render just for the Z-depth. Disable the lighting and materials so you don't waste time when rendering.

N The basic displacement material with a bit of customising does well here

O Create a hypertextured cylinder with a world-standard mapping to frame the scene

P For depth of field settings, set the Blur to 7% and make sure to pick a focus distance

Q With custom render settings we can focus our render time where we need it

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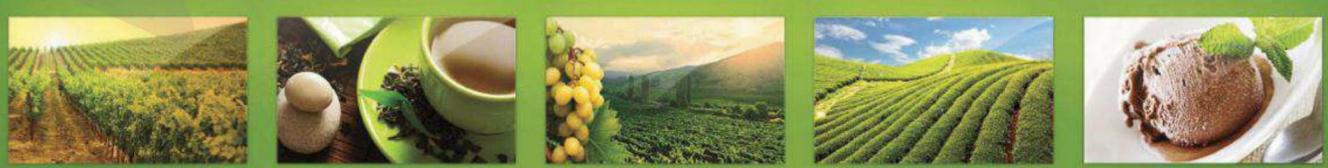

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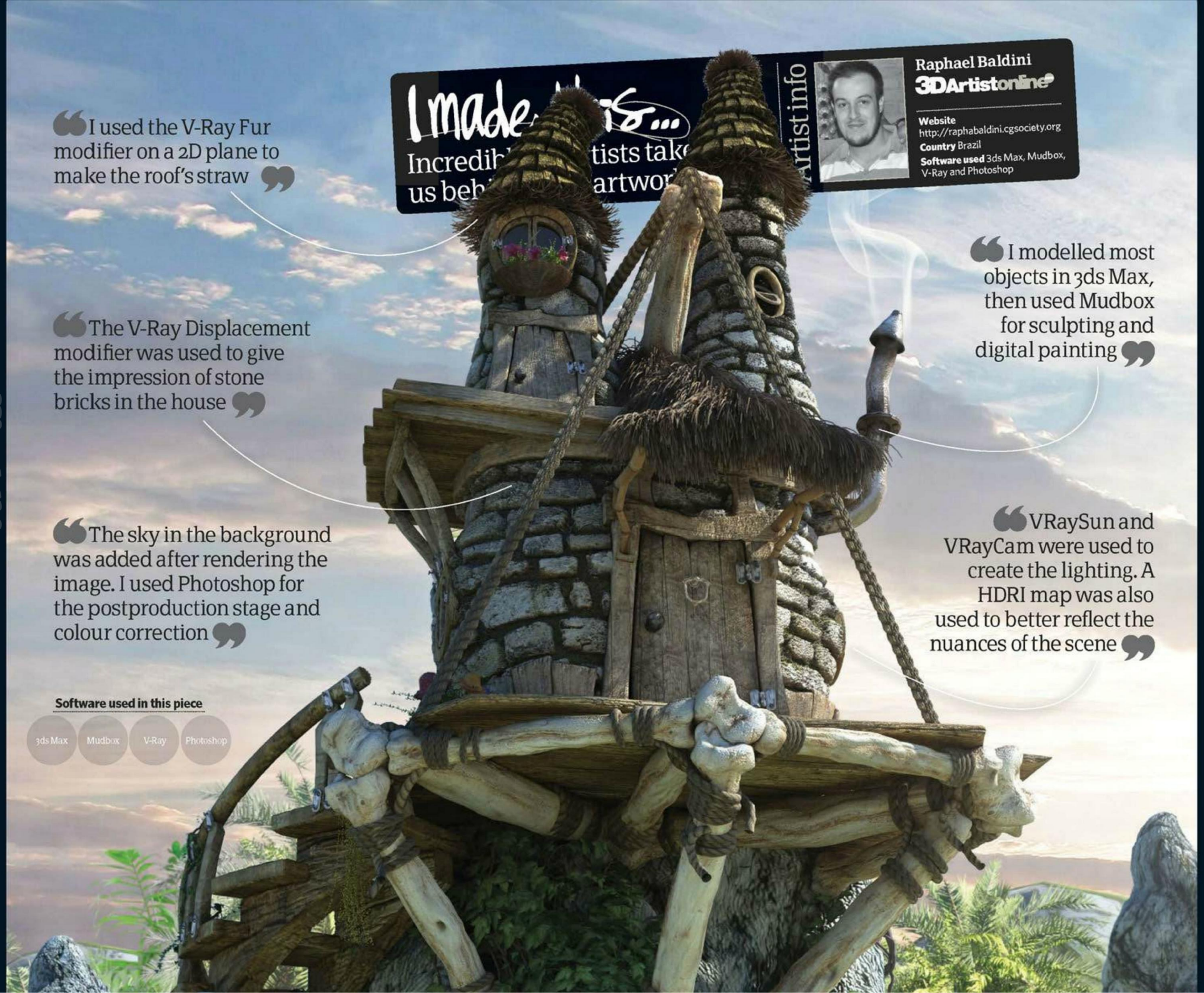
I made this...
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us beh artwor
artist info
Raphael Baldini
3DArtistonline
Website
http://raphabaldini.cgsociety.org
Country Brazil
Software used 3ds Max, Mudbox, V-Ray and Photoshop
I used the V-Ray Fur modifier on a 2D plane to make the roof's straw
The V-Ray Displacement modifier was used to give the impression of stone bricks in the house
The sky in the background was added after rendering the image. I used Photoshop for the postprocduction stage and colour correction
I modelled most objects in 3ds Max, then used Mudbox for sculpting and digital painting
VRaySun and VRayCam were used to create the lighting. A HDRI map was also used to better reflect the nuances of the scene
Software used in this piece
3ds Max
Mudbox
V-Ray
Photoshop

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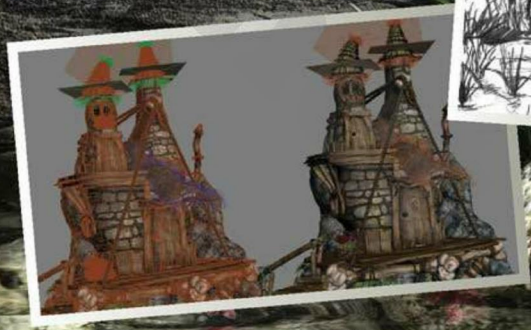
Gnome House 2012

This image was inspired by childhood dreams, fantasy and mystery. I also love the Celtic culture and its picturesque characters and deities. I started out by creating the scene as a freehand sketch. I used many reference images of folk-style houses, studying textures and colour. Based on this information I began the 3D modelling stage.



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Create a mythical beast Fauno 2011

"In this step-by-step guide I will offer an insight into my workflow for the personal illustration Fauno"

Luiz Alves is a freelance 3D artist based in Brazil

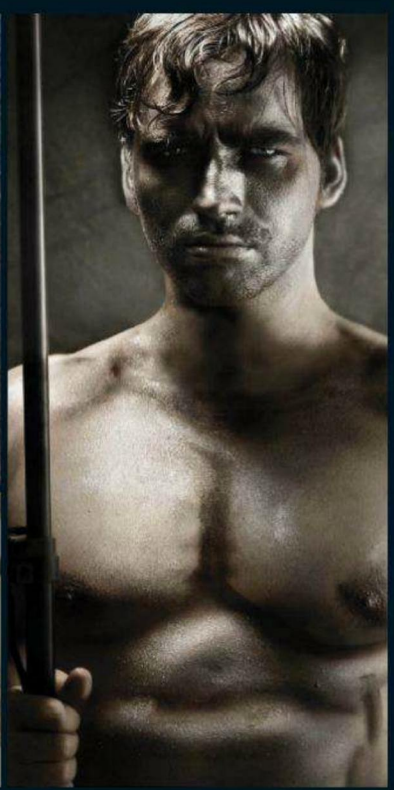
Intrigued by mythical creatures, I decided to create one as a personal 3D project. Over the next six pages I hope to share some of the techniques I used to produce this fictitious beast.

For those who may be unfamiliar with this creature, the faun is a man with goat's horns, ears, tail and legs referred to in Roman mythology and elsewhere. The subject presented a great challenge to me as an artist because there were many different elements to incorporate into one body. I used 3ds Max, ZBrush, Photoshop and V-Ray to tackle the task at hand, the techniques of which I'll reveal over the next few pages.

Modelling
Texturing
Lighting

Initial concepts

From rough ideas to designing the model



01 Seek inspiration First search for appropriate reference material to establish the exact tone and style of what it is you would like to create. Since the faun is made up of limbs from both man and beast, it's a good idea to find plenty of images of each to familiarise yourself with the differences in anatomy (A).

02 Build the base mesh Now I have an idea of what I would like to create, it's time to produce the base mesh. I tackle this by starting with the face first, poly by poly. By drawing the basic face loops and following the appropriate flow, it prevents any strange deformations in the geometry (B).

03 A question of curves Once I have a basic shape I move on to refining the geometry. I made the ears with a basic primitive out of the head and horns. Meanwhile, the curvature of the horns was built with a simple spline – it was already the shape I wanted and was then converted into polys (C).

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behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Luiz Alves

3DArtistonline

Personal portfolio site
www.kitoalves.wordpress.com

Country Brazil

Software used
3ds Max, ZBrush, Photoshop, V-Ray

Expertise Luiz is a freelance 3D generalist currently based in Brazil

Software used in this piece

3ds Max · ZBrush · Photoshop · V-Ray

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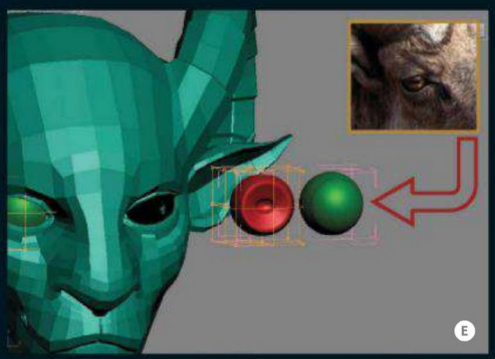
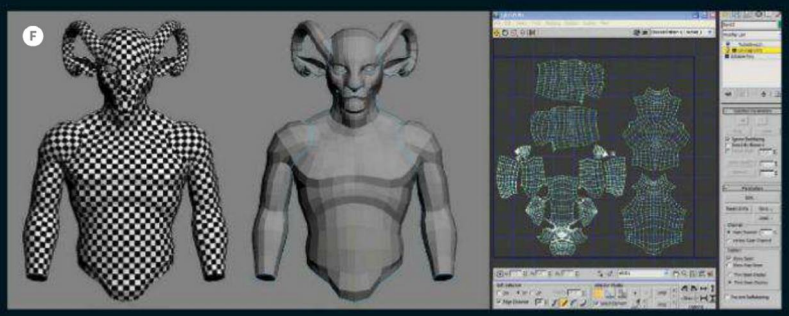
Build features

Progress the character's design

04 Shape geometry With the head modelling finished, I move onto the bust creation. I start with a simple box, adding some loops and making adjustments where necessary to create a humanoid shape. Once I'm happy, and the geometry is taken care of, I move the arms down to facilitate the rig process and minimise deformation during the posing D.



05 Produce the peepers Since the faun is a blend of man and beast, I wanted the eyes to reflect that. I decided to produce a variation of a human eye and a goat eye. To do this I made a little deformation in the eye to look like a goat and added an FFD modifier to align the eyes in the face. When making realistic eyes, it's necessary to have two meshes – one for basic colours and the other to make a liquid effect. It works well to produce the Reflection and Refraction on the eyes E.



06 Move on to maps With my basic mesh finished, it's now time for UV mapping. I organise the UV maps and use the chequered map to indicate whether there is any deformation. In order to economise the space in the UV area, I organise them into groups of similar sizes F.

07 Sculpt stage After modelling and mapping the base mesh, I export the OBJ file to ZBrush. Before I start sculpting, I always check to see if the UVs are correct with the UV Check tool in the Texture Map panel. This way it guarantees I won't have any map-related problems G.

08 Use the brushes Once I have subdivided my model to five levels, I begin sculpting the volumes and details with ZBrush's basic brushes (Standard, Flatten, Smooth and so on). I use alphas to create details such as creases, scratches, deformation and asymmetrical small details H.

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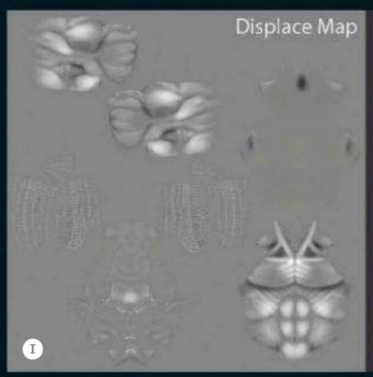
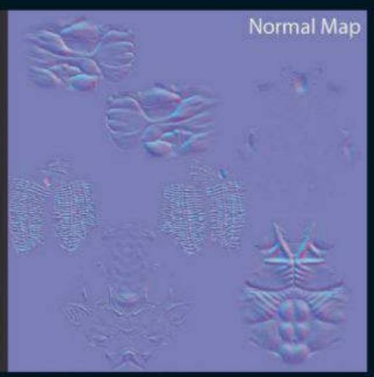
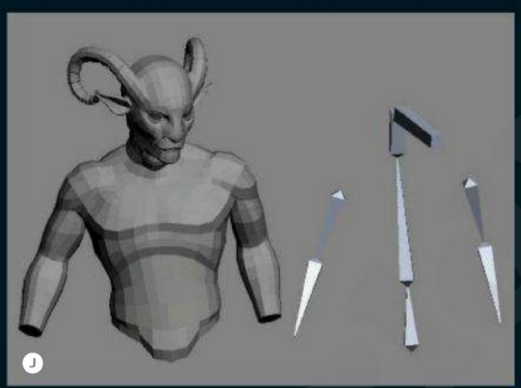
Lighting and polypainting

Apply realism to your model

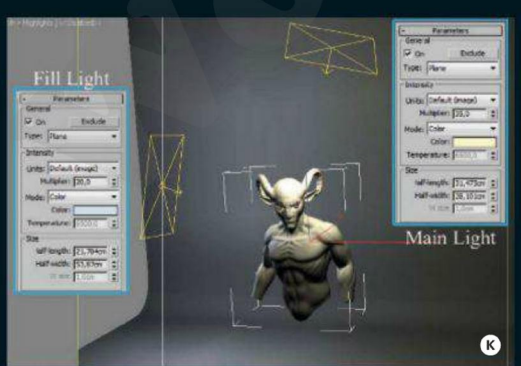




09 Return to 3ds Max Now I have finished the sculpting stage, I export the displace and normal maps created in ZBrush back into 3ds Max. Once there, I use the Displace modifier with TurboSmooth to apply the maps to the model. To test the maps, apply a simple V-Ray shader with one VRayLight to check the model over I.



10 Strike a pose Rigging and skin is next on the list. I make a basic bone structure and apply the skin modifier to control the mesh. This means I can pose the faun and tweak the position of the camera J.



11 Illuminative advice I decided to stick to a very simple light setup for this illustration. I tested my light using a basic V-Ray shader in grey and also added an infinite background, similar to what's used in photographic studios. Two lights were present: one yellow on the head with more intensity and on the right-hand side of the character a blue, less-intense one K.

Challenges with the project

Certainly the greatest challenge I faced during the faun's creation was the hair – it was tricky to both make and render it. Lighting also took quite a bit of effort, since I needed to test different configurations of setups and rendering specific to him (he didn't work well with V-Ray). As a result, this had a knock-on effect in the postproduction stage where I had to composite the two elements to produce a seamless integration of the two. It was tricky, especially considering both had different lighting setups and so on. Despite the difficulties, I learned a lot from my experimentation with these processes and hopefully, with the help of this tutorial, you can too.

> Since the faun itself is a blend of man and beast, I wanted the eyes to reflect that. I decided to produce a variation of a human eye and a goat eye

12 Paint the character Now the lighting is sorted, I head back to ZBrush to paint the colour map and create a cavity map. I use the Polypaint tool to paint my basic channel of colour map, mixing a large number of alphas I've created with skin variations and false shadows to raise areas on the body. I use the cavity map with the colour map to gain more volume and detail on the skin L.

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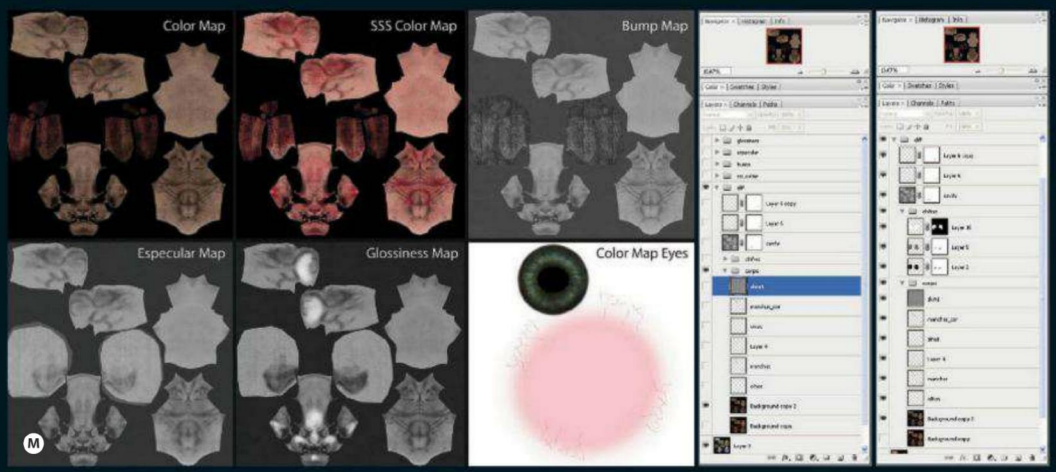
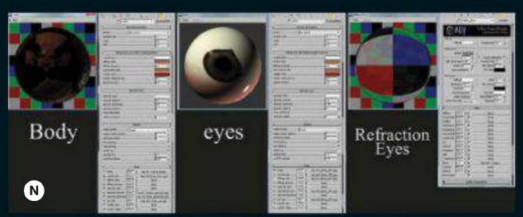
Add skin and hair

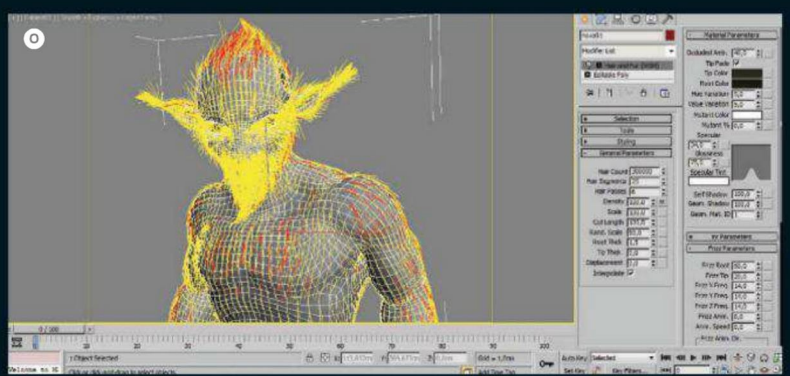
Use shaders, maps and more

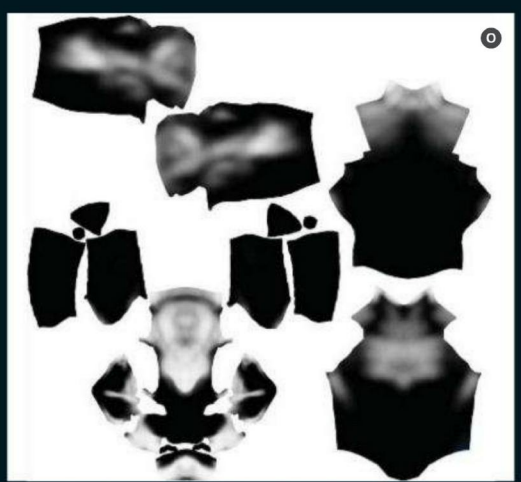
13 Get dirty It's time to start the final textures. Using the basic colour I've made a lot of layers in Photoshop in order to add more details with more definition. I've mixed all kinds of textures to create cracks on the horns, dirt, stains and I've added the cavity map so it doesn't look so clean. All the maps are created at 5,000 x 5,000px M.

14 Realistic skin I complete the shading process using the maps created in Photoshop. To simulate more realistic skin, I would suggest using VRayFast SSS2 – a practical and fast V-Ray shader that's great for translucent materials. To control the SSS shader create a SSS mpa. Meanwhile, I use the VRayFast SSS2 to make the translucent aspect of the eyes, but to give a reflective element I create a Refraction and Reflection shader applied on the superior eyes geometry N.









15 A new coat The faun's fur was created in 3ds Max's Hair and Fur modifier. In order to optimise the process it's necessary to convert the base geometry into a new geometry. This way it is possible to brush comb it really fast and get control using a density map I made in ZBrush O.

Artist Showcase

Luiz Alves

I'm a freelance 3D generalist working in a freelance capacity. I've always loved art, animation and special effects in movies since I was a kid. My course in Digital Media Production gave me a great start on my artistic journey. Since graduating I've continued to evolve my traditional and digital art skills and knowledge to improve my personal and professional portfolio.

Bravo **3ds Max, ZBrush and Photoshop (2009)**
I created this model as a character study to practise creating realistic facial features.

Chupa Cabras **3ds Max, ZBrush and Photoshop (2009)**
The goat-sucker creature was my submission for a 3D4ALL forum challenge. I tried to create something that was fantastical but that also carried a strong resemblance to a common animal in our lives.

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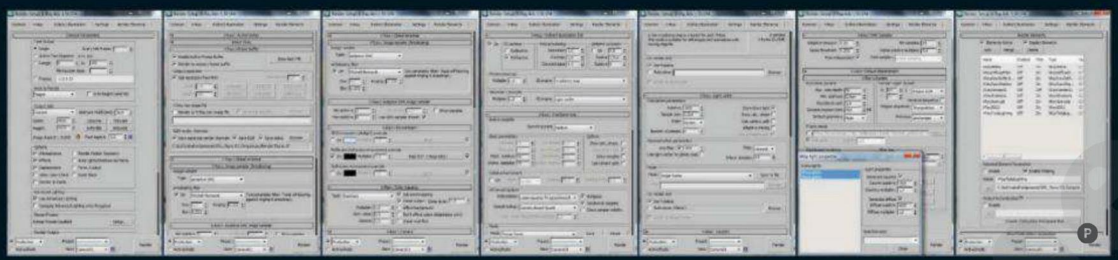
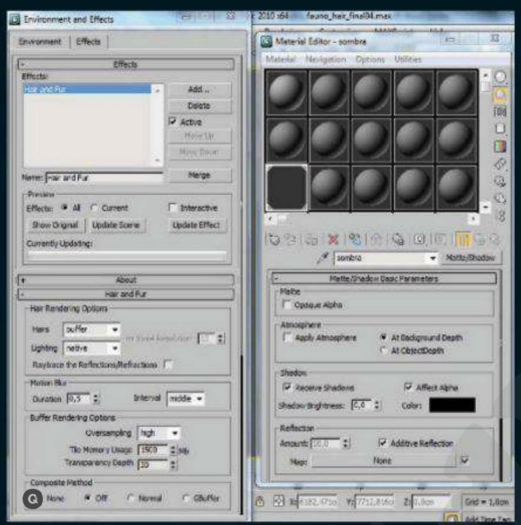
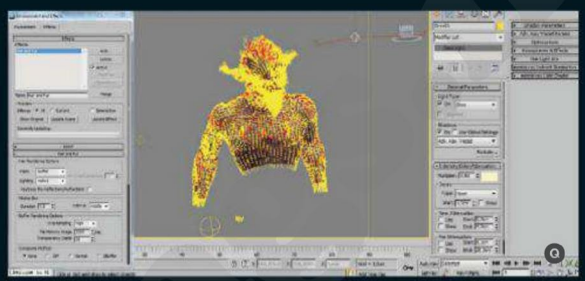
Achieve the final render

Techniques to combine two assets into one



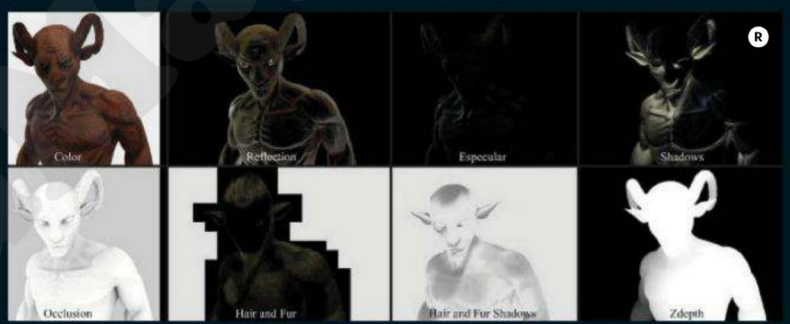
16 Increase the size The final render for this illustration was generated in 4,000 x 3,072px as an 8-bit TIFF file. I prefer to use a larger scale for the final render because it makes it easier to make selections while compositing everything and I can see more details than if it was a medium-quality image. If you look closely, the medium render always produces a blur in the finer details, whereas this doesn't happen often with the higher quality render P.

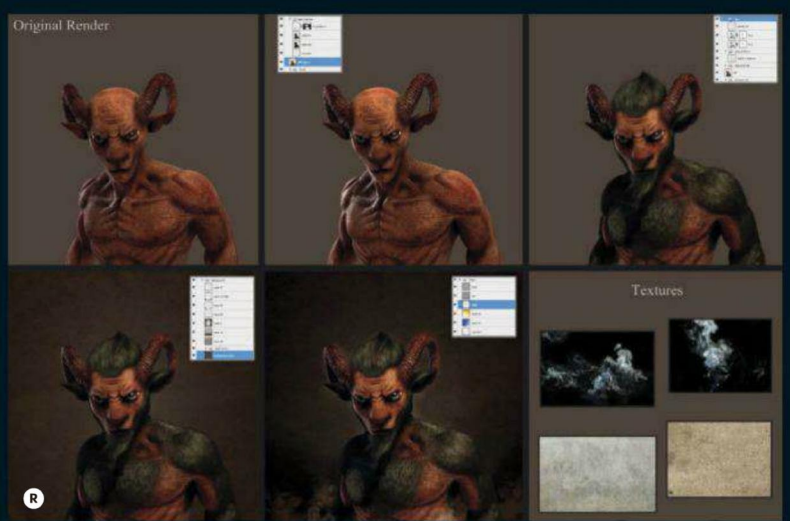




17 Furry problems The render process was different for the fur because hair and fur doesn't work with VRayLights. In order to make the fur render, I worked with Scanline render and Omni Lights in the same positions as the VRayLights. It's important to remember that when we want to render the fur, the resolution of it is totally proportional with the tile memory usage – so if you want to render in large scales, you will need to set the tile memory usage in large values, otherwise it won't render.

To improve the integration of the body and the fur, I created a render channel just for the fur shadows. I then applied a matte/shadows material and turned the option off in the panel effects so that the shadows are only generated on the body Q.





18 Final touches Now it's time to tackle the composition. My postproduction stage was completed in Photoshop. Using the channels applied on the original render you can control aspects of light, shadows and reflections. With the body setting closed, prepare the fur – it will be necessary to paint the fur and simulate some shadows on the body to make it look more real. Add a Noise filter, some colour gradients and one layer to paint necessary highlights R.

Boy Lucas **3ds Max, ZBrush and Photoshop (2011)**
My nephew inspired this piece. I realised that the looks and expressions of children are something very interesting. They carry a feeling of pure joy that we gradually lose as we reach adulthood. I tried to capture this look in the bust to make me always remember what we once were.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Juan Carlos Cuadra
3DArtistonline

Website www.juancuadra.com
Country USA
Software used Maya, ZBrush, V-Ray, Photoshop, NUKE

"Render out your scene or character with low settings and bring them into Photoshop to explore new possibilities. With a rough render, you can sketch out where you would like to remodel parts of your character, alter lighting direction and so on"

Software used in this piece

Maya · ZBrush · V-Ray · Photoshop · NUKE

The Great Cookie 2011

My inspiration to create this image came from my love of cookies, milk and adventure. The character, Teddy, is in search of the most elusive treat: the giant chocolate-chip cookie. After months of searching, he stumbles across a secret room behind his house that leads him to a magical land.

"Stay loose and keep an open mind when starting a new project. I recommend writing a short story or simple phrases that describe the character, environment or composition. Once you have that going, do some warm-up sketches and play around with shapes for your character"

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"Render passes are commonplace nowadays, so get in the habit of taking advantage of them. One of the most useful things I found was rendering my lights separately – that way I could change their intensity and hue in postproduction"

"Once you have an idea of what you want to create, sculpt some form of a maquette. At this stage you can continue to explore your character without having to worry about topology or locking the design"

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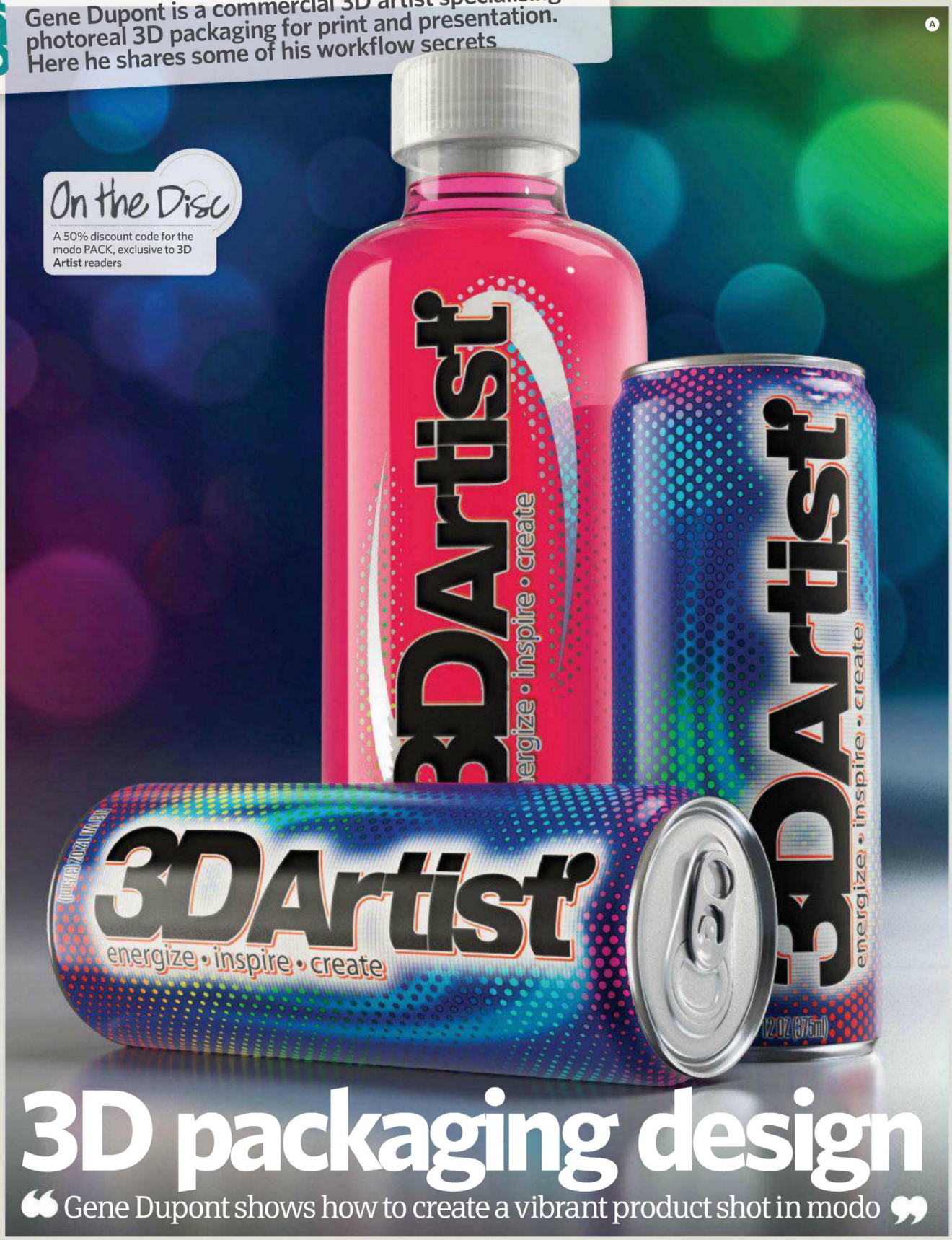
Masterclass

Gene Dupont is a commercial 3D artist specialising in photoreal 3D packaging for print and presentation. Here he shares some of his workflow secrets



On the Disc

A 50% discount code for the modo PACK, exclusive to **3D Artist** readers

3D packaging design

"Gene Dupont shows how to create a vibrant product shot in modo"

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Traditionally, commercial product shots were retouched photographs of the final printed product. If the product didn't yet exist then an artist would be responsible for creating a physical model or mock-up. This would then be photographed, colour corrected and retouched in Photoshop. Changes to the label design, structure or materials would require this whole process to be repeated. Thankfully, times and technology have moved on, enabling 3D artists to produce high-quality product shots rivalling photography used in almost every stage of the design process.

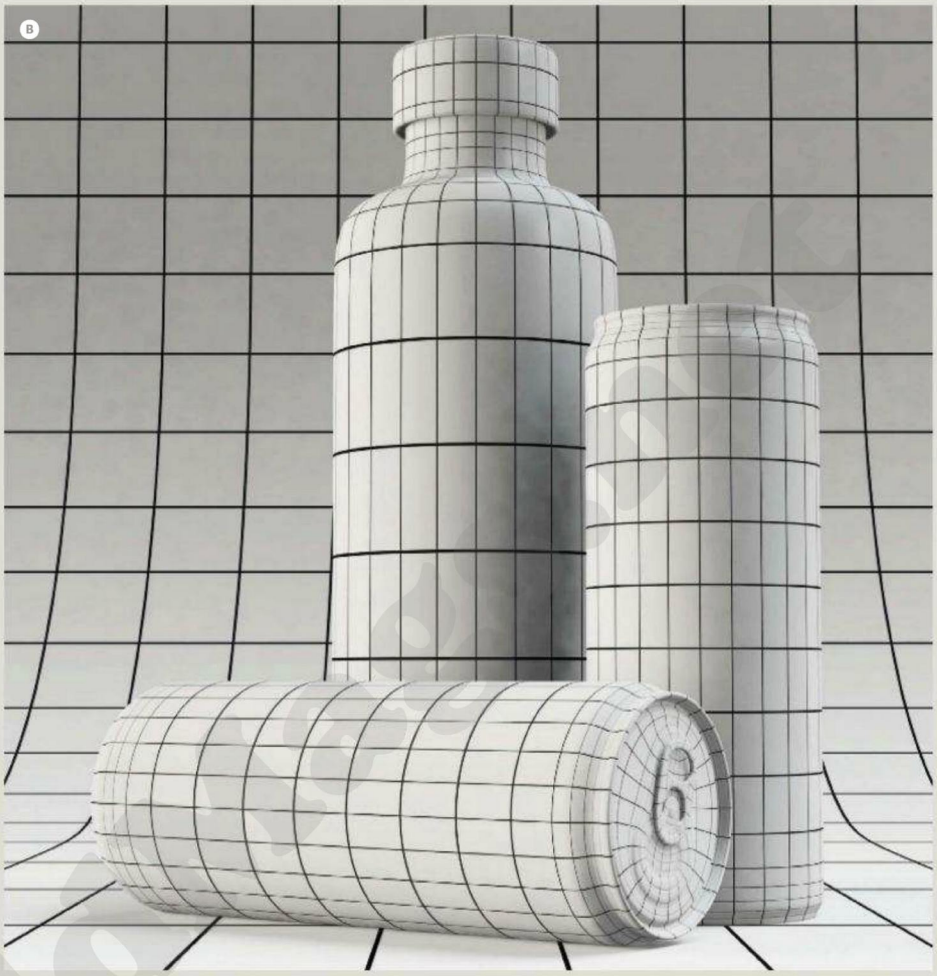
As a one-person 3D department in a small design agency, I create digital imagery and some animation for clients, as well as for the in-house design and production departments. This content can be anything from small, quick renders for design layouts, to high-res, print-ready art on packages.

Another use for this type of 3D is to enhance presentations when pitching or competing for design jobs, to pre-conceptualise designs on packages, marketing promotion, online focus groups and more. It reduces the need for outsourcing physical comps, photography and illustrations, enabling small design studios to compete with larger agencies by providing professional-level visualisation and product shots with a tiny team.

Another bonus about this sector from a career perspective is that, unlike other forms of print media, packaging design hasn't been downsized due to the impact of digital media. The reason for this is that, unlike some newspapers and magazines, people still physically go to stores to buy consumer packaged goods (otherwise known as CPG) – low-cost goods that are sold quickly, consumed and then purchased again quickly.

Packaging design is more important than ever when communicating your brand and differentiating one product over another. Brand managers and strategists are constantly looking for ways to create an impact on the shelf that attracts the eye of prospective consumers strolling down the aisles in the supermarket. As a result, product structures, materials and label designs are continually being worked on, building equity, becoming revitalised, extending into sub-brands and merging with other brands.

Producing 3D renderings makes creating realistic and detailed product renders a much more fluid process, saving clients time and money. For most projects, I'm given design layouts or print-ready mechanical files and apply them to 3D models I've created, then render and retouch them to create a virtual photograph. With other projects, however, I'm given rough sketches and asked to create various structure variations or explore package materials.



I always use render outputs for colour correcting, retouching and compositing in Photoshop. Once a 3D image is approved, I can duplicate the process if more designs need to be applied to the model. The exactness of the camera angle, lighting and reusable 3D environments allow for batch processing and reliable systems that are much more efficient than traditional photography. I've developed production pipelines to automate and batch process the creation of multiple labels using the same 3D model and scene.

In most cases, the clients I've worked with are more interested in presenting their brand and labelling the illustration over showing a truly realistic scene. They want a composition that shows off as much of their brand and label design as possible. The majority want a vibrant image with highlights, reflectivity and shadows but don't want overshadowing or highlights that wash out their brand colours. The challenge is to create a realistically rendered image with depth while still keeping the colour and detail of the flat label.

A High-res final image created using modo, PACK and Photoshop for the label design

B Wireframe render of the scene

In this masterclass, I will demonstrate how to quickly create and render a product shot using Luxology's modo and PACK (Package Design and Construction Kit). I've worked with other 3D packages in the past, but the modelling tools, rendering capacities, UV mapping tools and overall workflow make modo the perfect tool for creating packaging images.

The PACK consists of a collection of pre-made shapes and tools for producing many of the commonly used package shapes. For most package models, it's just a matter of loading them into the scene file and using them as they are or modifying them with a morph target. Using the **3D Artist** logo, I created some quick labels in Illustrator and exported them as .png or .psd files. Since I was going for an energy drink I opted for a multicoloured, patterned background for the cans with some screen out swooshes for the bottle.

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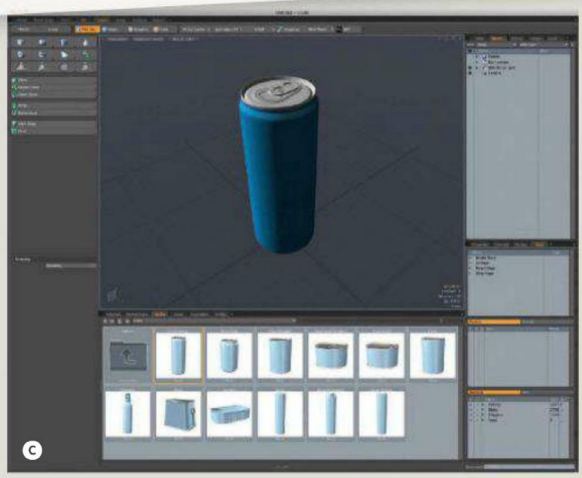
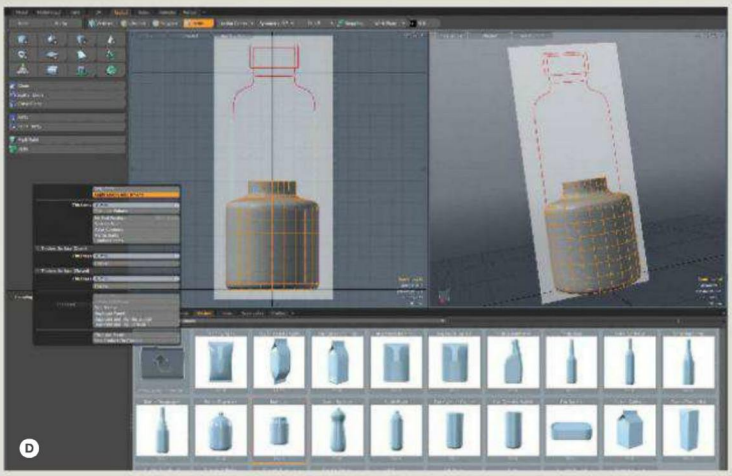
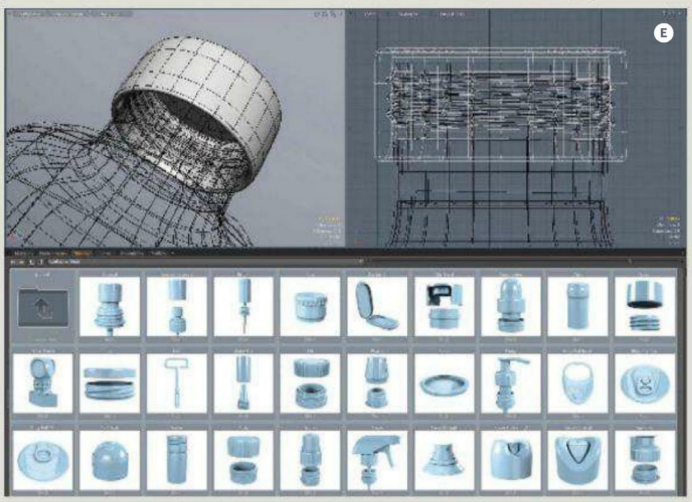
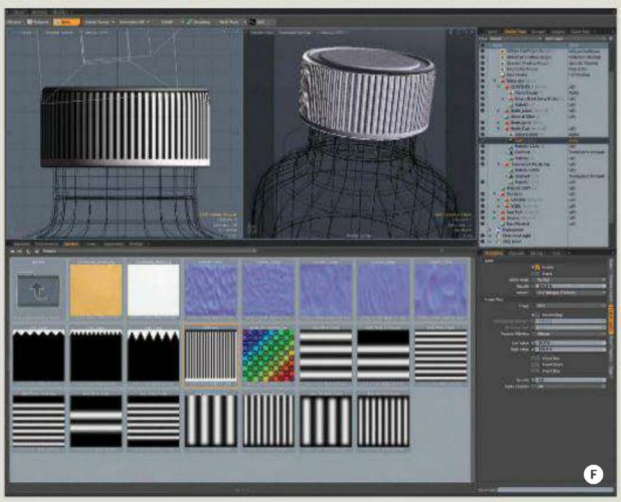








C The energy drink can is one of many instantly available models in PACK's preset library

D Load the base shape and use morph maps to edit mesh to match the backdrop image

E Use PACK tools to load and combine lid with base shape

F Load Grip.png from the PACK directory directly onto the bottle cap's edge

G Create a simple composition that stands out, sells the brand and will impress

H Output layers are essential for refining your rendered image

Time to create some energy

01 Aluminium can preset

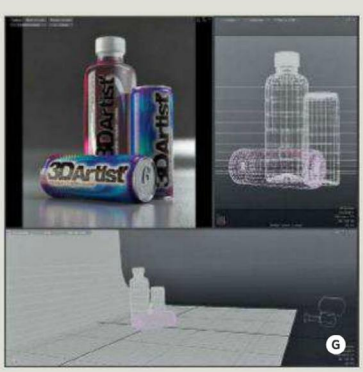
Some packages are standard shapes used universally by manufacturers. PACK has a good selection of these models in the PACK directory. For this tutorial, I used the Energy Drink Preset model. Double-clicking on the Drink Energy from the Cans directory in the Presets Folder of PACK loads the model in your scene on top of the ground plane. This model has no morph targets associated with it, but it is still editable with the standard modelling tools in modo C.

02 Load base shape

Most packages are not going to be found exactly as needed in the presets. PACK also has a variety of tools to build custom shapes. For the bottle shape I created a sketch in Photoshop and imported it as a backdrop item. From the Base Shapes directory, load Bottle Jar. Apply various morph targets associated with the base shape to customise it to match the backdrop item. The morph targets don't just scale the object, but have a wide range of shaping options that make it easy to modify your shape. When satisfied with the shape and size, use the tools in the PACK pallet/window to create thickness and then to create the liquid contents of the bottle. Last, I duplicated the outside of the bottle to create a shape for the label to go on D.

03 Combine base shape with container seals preset

Load the Soda container seal from the construction area of PACK. Once loaded, adjust the size of the soda seal to match the top of the bottle. It may be necessary to size both the inside and outside of the seal this could prove tricky, but achieving the right result at this stage is essential E.



04 Load and refine material

The Energy Drink can model comes with materials already defined for it. For the graphic part of the can, I loaded the label file I created in Illustrator. I added a gradient layer to control the reflective amount and also loaded an Alpha Output layer so I could isolate the material later when I'm colour correcting the final image in Photoshop. The rest of the can has the material Steel already attached. Although I usually end up changing the preset material, this default worked well with only some minor tweaking. Since the bottle was built from base shapes, I dragged a material in modo's material library to the object. I used Translucent Plastic for the bottle and Sports Drink Berry for the liquid. The label was built using an image and a stencil map. For the cap, I built a material with a gradient to control the transparency and applied a Grip bump map found in the PACK F.

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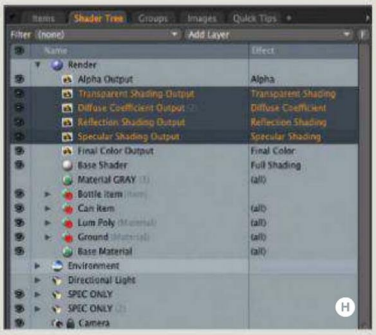

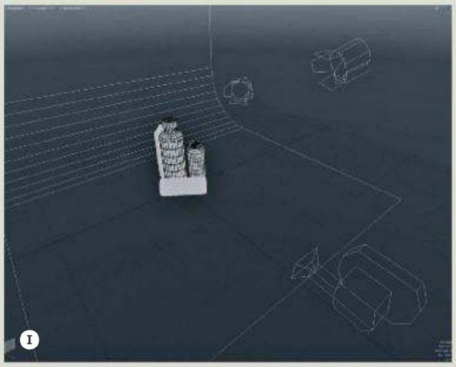

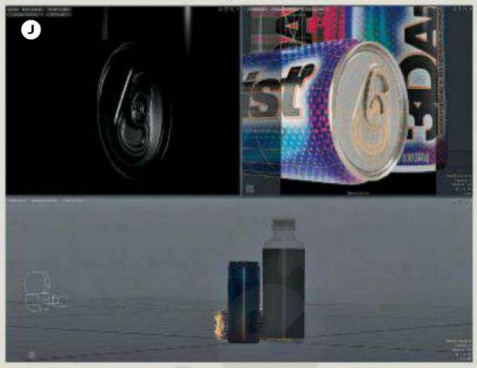

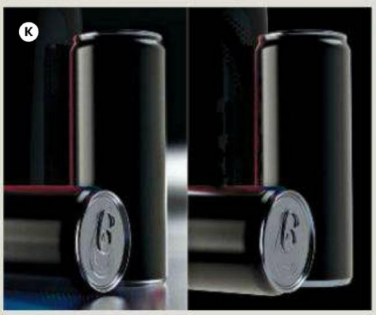

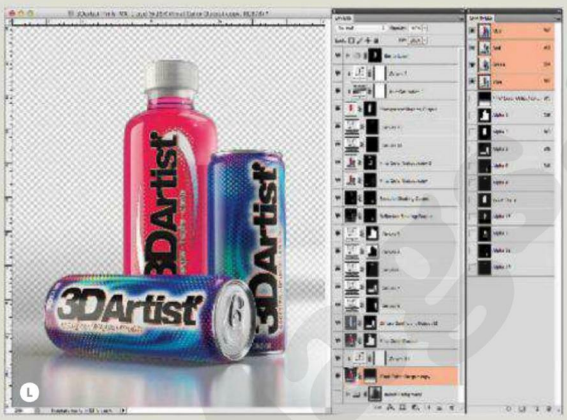

05 Build the composition

Position and rotate items to best show off the brand and label design. Since these products are energy drinks, I positioned the camera looking up at the products to give them a heroic feel. Reposition the labels if necessary so they are the main focus. I created a simple background sweep with a reflective material for the background G.

06 Set up the output layers

In the render tree, add output layers for postproduction compositing in Photoshop. I generally add more output layers than I think I will need, just to be sure. For this illustration though I used Reflection shading, Specular shading, Diffuse Coefficient and Transparent shading Outputs. You will find that alpha channel outputs are huge time savers for postproduction. I choose to put Alpha Outputs on every material for easier isolation of areas later in postproduction H.

07 Light the scene

Probably the most important part of creating images with drama. With Global Illumination turned on, experiment with loading some of the scene files in PACK as well as other HDR studio environments in modo to light the scene. In the preview renderer, watch the reflections and specular highlights on your objects as you load environments and stop when they are looking good.

I generally stick with the studio environments and not ones that add colour to the labels because this will make them harder to colour-correct in postproduction.

For this scene I settled on the 3-point beige HDR that ships with modo. I will often rotate the environments to get better reflections. In this case I rotated it 38 degrees on the Z-axis. To get the liquid in the bottle to appear well lit, I added an illuminated polygon and positioned it directly behind the bottle I.

I Add and position lights in order to augment the HDR lighting

J Move Spec Only lights in the light viewport until you see some dramatic highlights on your model

K The Reflection Shading Output layers rendered with and without the background sweep added

L Isolating areas with layer masks enables total control when colour correcting

08 Fine-tune your highlights with Specular Only lights

Create lights and set them to only affect the Specular and 0% of the diffuse. Then set your interactive render (preview) to only preview your Specular Output layer. This enables me to see the highlight interact with the materials as I move the light. Move your Specular Only light around until you see some fetching highlights on your object J.

09 Time to render

Trying to get the lighting and materials perfect in one scene is ideal, but sometimes, due to looming deadlines and other time constraints, it's necessary to render more than one scene. For this scene, I rendered the product models alone and then with the backdrop sweep. I liked the lighting on graphic areas without the sweep, but the reflectivity of the metal areas looked better with the sweep K.

10 Composite output layers in Photoshop

I do an overall layer adjustment with Curves and Hue/Saturation before isolating areas with the Alpha Outputs and working on individual areas. Using the other Output with layer masks, I paint in more specular highlight and reflections in some areas to make the image's materials more dramatic. I set the Diffuse Coefficient layer blend mode to Overlay and the Opacity to 13% to punch up the colour a bit.

Last create a background bokeh effect, as this will help the packages in the foreground really pop L.

Colour-correct spot colours with layers

Designers are particular about their spot colours. In Photoshop, you can specify a vector shape layer to have a pantone colour. I create strips of pantone colours and overlay them on top of my Photoshop file. For most illustrations, matching the spot colours with the midtones in your illustration usually provides the best results.

Make your computer do the work

If you think you are going to apply many different label designs to an object then spend a little extra time planning a production pipeline and record repetitive tasks. Creating 3D product shots is fun, but repeating the same tasks can get tedious fast. Replacing an image with a folder full of sequentially numbered images allows you to render multiple labels. In Photoshop, use adjustment layers for non-destructive global changes across all your labels. Assign a Layer Comp for each label and output your layer comps to whatever format is requested.

> Create a background bokeh effect, as this will help the packages in the foreground really pop

World Magazines

3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, ArtRage, Mudbox and modo

Need help fast? Join the

The advisers

Maya
Gavin Goulden
www.gavimage.com

Our Stateside Maya master returns this issue to answer a rigging-related query. How do you prepare a wing for movement? Read on to find out

ArtRage
Richard Yot
www.itchy-animation.co.uk

Richard is known for his quirky character designs. He talks textures of the natural media variety in his six-step tutorial. Free brushes are included

Rigging in Maya

Maya

"I'm making a dragon – how do I rig its wings?"

The key thing to remember about wings on any creature, real or mythical, is that they are essentially giant mutated arms and hands. Looking at the anatomy of birds, you can make the relation to how their bones and muscles would move just like our own but with a different end result. Keeping that in mind, I suggest first breaking down your character's wings into the same sections you would consider for regular arms. Obviously the main difference here is the amount of webbing between the bones. If you look at creatures like bats you can see that the skin stretches out from the body to the tips of the wings, with bony sections underneath that are essentially the creature's finger bones. We'll construct our wing models to have anything considered arms and hands as a consecutive element, with the webbing as a separate piece, either wrapping around the arms and hands or colliding through, depending on the style.

Starting at the very base of the arm, you will need to create a clavicle bone that will connect the entire wing to the body and act as a way to retain shape in the creature's shoulders. From here, build out and create a bone chain starting with the upper arm bone that will extend from the shoulder down to the creature's elbow. Once this has been placed, you can continue the chain and create a large bone that will make up the creature's forearm, essentially from the elbow to where the wing would branch off into sections.

Each branch should be considered as fingers that will be able to bend and distort as if the creature were closing a fist. Granted, this deformation will be mild compared to say, a human hand, but the same effect will be used when the creature flaps it's wings. Once all of the finger bones have been placed, parent them to the arm bone chain.

Next, we'll weight the arm and fingers to the bones that we have created, which is fairly straightforward. What will need some tweaking however, is the webbing. Weight the webbing to all of the bones we create and spread out the influence as best we can to ensure the skin follows the movements of the arms and fingers.

Advanced techniques can be used, such as adding cloth simulation to the webbing, but this would only be effective in a pre-rendered environment. You can also create a morph target for the wings to have a closed position that would switch to an open position in one frame animation to avoid obvious clipping and distortion.

B Getting the clavical bone right is essential both for the rigging and animation stage

E Weighting the arm and finger bones with the Smooth Bind option enables flexibility

F The webbing of your wings finally bring all the bone elements together

More control

This is a basic wing setup that should get you through most of your needs. However, you may need tighter control for close-up shots or if you have a more detailed character. Solutions to this problem could be as simple as adding more bones for just webbing, or the cloth simulation mentioned earlier. Also, if a character has feathers, you may need to add bones for larger feather sections to accurately control the full wing spread. You could also model out morph targets for your character's wings and blend between them, which would be costly in a real-time environment but would give the most control.

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growing community at www.3dartistonline.com

Mudbox
Wayne Robson
www.dashdotslash.net

Wayne is all about lighting effects and depth of field in the marvellous Mudbox. He's also very kindly supplied some video training too!

modo
Josh Kitney
www.photosonic.co.uk

Josh is a new face on this here panel. He's sharing some of his guidance for re-creating a realistic grass field in modo. Check it out on page 86

Send us all of your 3D problems and we'll get them sorted. There are two methods to get in touch with our team of expert advisors...

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Or post it on the Q&A section on our forum
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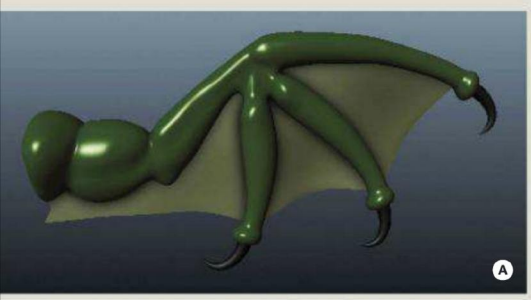
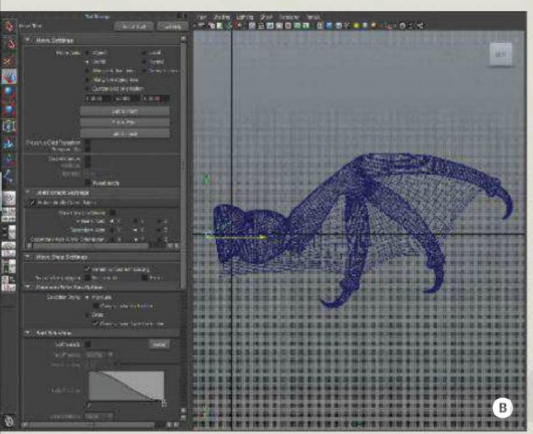


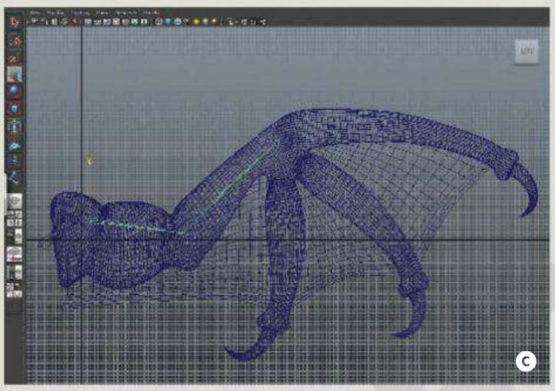


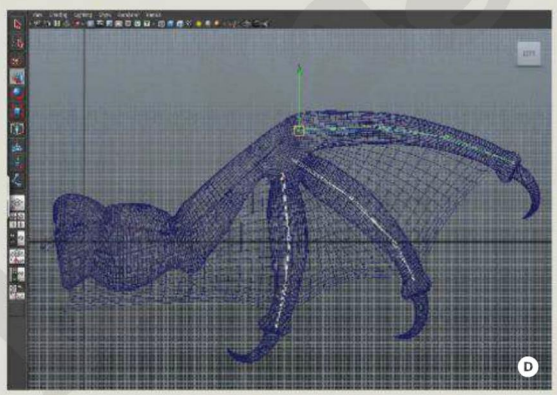
01 Analyse your model

The first thing you should do before rigging your wigs is to analyse how they are constructed. Generally, the wings of any creature are a mutated version of our own hands and arms. Your creature's wings should consist of an upper arm, forearm and fingers. Connecting these pieces to the creature's body will be a separate model that makes up a thin layer of skin that the creature would use to actually fly A.

02 Create the clavicle bone

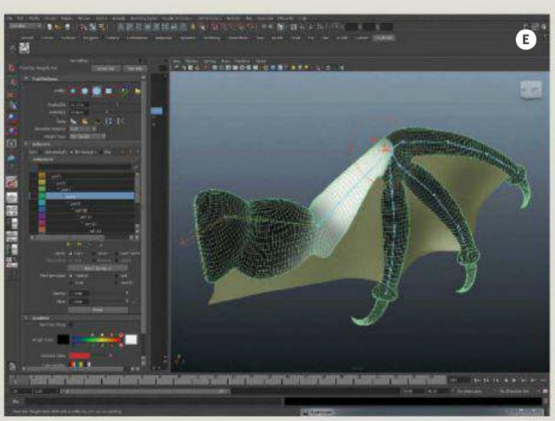
Now, to begin the wing rig, first create a clavicle bone that will extend from the centre of the creatures chest to inside of the shoulder. In the Animation tab, navigate to Skeleton>Joint Tool. From here, simply click on where you would like the clavicle to begin and then click where you would like it to end. Essentially, this will create three elements: the root of your clavicle bone, the clavicle itself and an effector that will actually control the movement of the arm when animated B.





03 Add arm bones

Once the clavicle has been created, access the Joint tool again. This time create a chain that begins where the clavicle ends, extending to the elbow and then to the wrist. This is basically a two-bone forward kinematic arm that enables the shoulder to stay in place, the arm to bend and extend, and gives a location for hand bones to be connected to C.



04 Insert finger bones

Next, create a chain for each branch of the wings. These will be treated just like human fingers. They should be able to spread apart and curl to accommodate deformations during flying animations. Once all of the chains are created, link the root of each finger chain to the effector of the arm bone (the wrist) and then connect the root of the arm to the effector of the clavicle. This ensures that when the upper arm bone moves, the hands will move with it. This can all be done in the Hierarchy window D.

05 Weight the sections

Now, bind the models to the skeleton we created. This can be done by first selecting the models, then all of the bones within the rig, and finally accessing Skin>Bind Skin>Smooth Bind. Smooth Bind will enable the model to accept influence from more than one bone. Generally, choose three as this is usually the limit for influences in a games environment E.

06 Weight the webbing

Finally, select the webbing model and the bones. Once all of the elements have been selected, apply Smooth Bind to the model. From here, you can access the Weight Painting panel by navigating to Skin>Edit Smooth Skin>Paint Skin Weights and edit the influence that each bone has over your model. Using tools like Smooth Skin will make evening out the influence on the webbing a much easier process F.

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Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, modo, Mudbox and ArtRage

Photoshop

ArtRage

Natural media textures in Photoshop and ArtRage

How do you simulate painterly textures in 3D?

It is possible to simulate realistic painterly effects in Photoshop. Once understood in depth, Photoshop's brush engine is extremely powerful and, with the right settings, it can emulate natural textures very effectively.

Getting the most out of the brushes does mean spending some time exploring the less-known settings in the Brushes palette, especially the Dual Brush settings, which mix some extra texture into a brushstroke to create organic edges. Also the Color Dynamics settings are the key to creating tonal variations in the strokes to create a painterly look. By setting the stylus pressure to modulate between the Foreground and Background colours you can create very natural-looking brushstrokes, and with some clever layer blending you can also use this feature to create very smooth blends.

ArtRage is another program that can re-create real-world textures beautifully, and as a bonus it has a built-in feature for exporting all of the bump and reflection information to texture maps suitable for 3D so that your impasto effects are perfectly preserved in three dimensions. This makes it ideal for creating thick, painterly visuals such as oils.

To complete the illusion it is important to make use of other 2D techniques such as masking and texture layering. The brushes can do most of the work but the final touches that can be achieved with layer masks and downloaded textures will add another level of realism. The colour textures created in Photoshop can also be used as the basis for bump maps and specular maps by converting the original paintings to greyscale.

Another benefit of working in Photoshop is that you can apply your paint effects directly in 3D if you are using the Extended version. This is a much better way of working than painting on a 2D image, and of course you still have to ability to paint on the 2D texture if you wish as well as add layers and layer masks as you paint. Despite some limitations in Photoshop's 3D engine, this is a very flexible way to work. You can open 2D textures as Smart Objects and add new layers to them as you work, meaning they should automatically update on the 3D model.

Be sure to check out the Photoshop tool presets that are included on the disc. These have a selection of brushes as well as some presets for the Smudge tool that can create smooth blends and other painterly effects.

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01 Thick impasto paint

ArtRage is a 2D-only application, so in this case the UVs for the model have been laid out and applied to a layer as a guide. Now add a cardboard texture from CGTextures and apply it as a background. On a new layer, lay the paint down using a thick impasto oil brush. ArtRage has many preset brushes with additional controls so you can tweak them to your purposes A.

02 Export from ArtRage

Once you are happy with the texture painting in ArtRage, there is a feature that enables you to export your textures to greyscale maps suitable for 3D. Select your texture layer and then go to Tools>Layer Options>Export Layer To Channels. This will create a diffuse map, a bump map, a shininess map and a reflection map of your texture that you can then apply to your 3D model. The bump map is the most useful for the impasto effect B.

03 Use Photoshop layers

It is also possible to create an impasto effect in Photoshop, although this requires a little more planning. By painting in several layers you can simulate the natural build-up of paint and, using the layers as the basis for your bump and specular maps, you can easily create the illusion of depth. Make sure you use a brush that has jagged edges to simulate the look of thick paint C.

04 Create bump and specular maps

Once your textures are painted, you can make a copy of the layered image you have created and then, by giving each layer different greyscale values, you can create very good bump maps that show varying levels of paint build-up. Specular and reflection maps can also be created this way, enabling different levels of shininess at different depths. This method requires a bit more work than the one in ArtRage, but the results can be very convincing D.

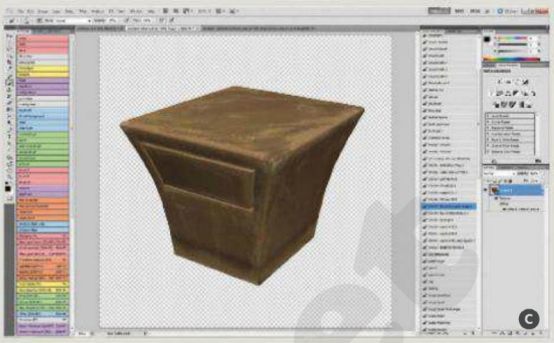
05 Watercolour effects in Photoshop

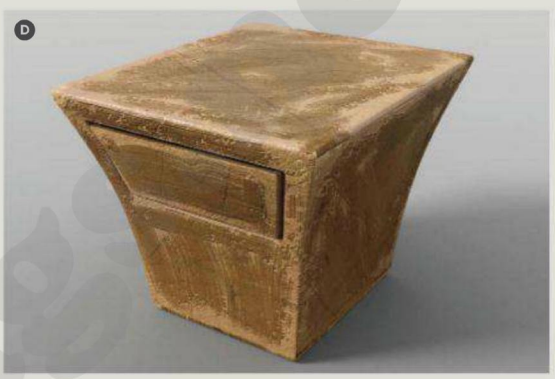
A watercolour effect can be created on several layers by building up colour using custom watercolour brushes, included on the disc. These use the stylus pressure to modulate colour, opacity and flow, and create the varying levels of transparency and the irregular texture of watercolour. If you add some layers in Multiply mode you can also mimic a wet-on-dry effect and use a white background to blend to a transparency, as this becomes invisible E.

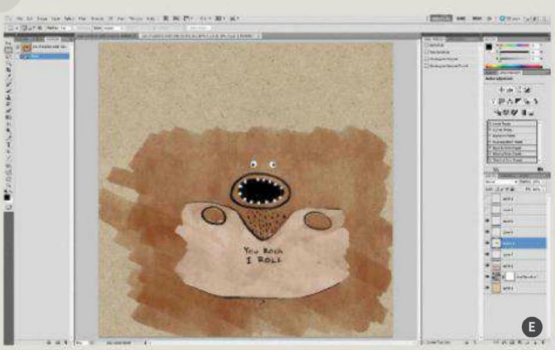
3D painting in Photoshop

3D painting in Photoshop is feasible, but a little rough around the edges. The navigation is poorly implemented, you have to use a special Rotate tool to turn your model around and the experience is not fluid compared to mainstream 3D programs. A Space Navigator can alleviate this and enables a smoother and quicker workflow.

Be aware that the size of the window the 3D model is active in will affect the quality of your painting. The default is 1,024px, and this size is used for projection painting onto your textures which might be considerably larger, so it's a good idea to increase the size of the master 3D document.







06 Add real-world textures

Finally it's always a good idea to add some extra details to your painted textures, for instance scanned paper or watercolours on a subtle overlay layer on top of the Photoshop document. Use masks to break up your layers and introduce some careful imperfections for added realism. These can also be carried over to bump and reflection maps. Every level of detail you include will add to the overall visual effects of your render F.

Questions & answers?

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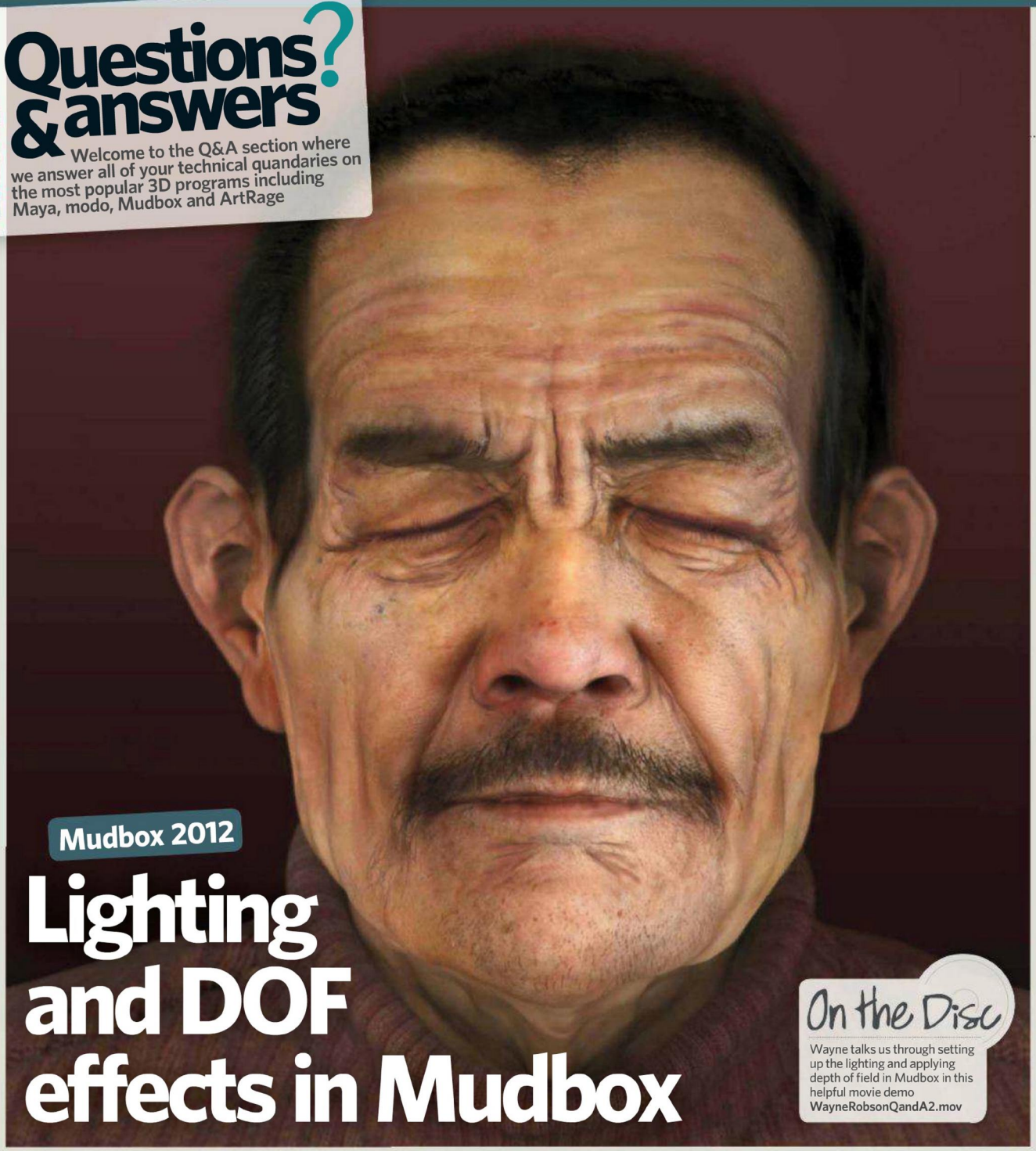

Mudbox 2012

Lighting and DOF effects in Mudbox

On the Disc

Wayne talks us through setting up the lighting and applying depth of field in Mudbox in this helpful movie demo **WayneRobsonQandA2.mov**

How can I best use lighting and filters in Mudbox to preview how an external render will look?

It's important to know what your model and textured asset will look like once you render in an external render engine, such as mental ray, RenderMan or V-Ray, in your host application. You don't really want any nasty surprises at render time, so knowing in advance as near as possible what the final article will look like is always a good idea. This is important not just so we can be sure that everything from the sculpt itself to its textures will look the way they should, but it can also help as a vital part of the sign-off process in production.

If an art director can see either your Viewport, a series of screenshots or turntables, they can better judge what further work or changes (if any) need to be done. Both lighting and the various screen space viewport filters in Mudbox enable us to do exactly that. So in this article, we're going to go through the process with a model I've created to get an idea of how it will look when rendering.

As this model uses hair in the native app we can't preview that, but I usually output any hair passes separately at render time anyway for greater control.

We'll start by setting up our lighting and changing our material slightly to simulate a subsurface effect in the Viewport. Next we'll use some viewport filters to get an idea of how the model will look when rendering. You may also want to try exporting the various viewport filters as image pseudo passes, such as the Cavity filter, Ambient Occlusion and viewport depth filters, which you can save out and use for some mild post work in Photoshop.

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01 Set up the main light

Mudbox starts by default with a single spotlight active. However, it has no shadows active whatsoever, so in your Object list select your light and in the Properties panel open the Shadows section where you should tick the check box. Keep your shadow map resolution to about 512 in size until you have everything set up. Later, you can increase its size for more shadow detail A.

02 Add image-based lighting

Whether it's because you have a scene that the model will eventually be matched to, or you have an HDRI in mind, Mudbox enables us to use this as part of our lighting solution. Add an image-based light by going to Create>Lights>Image Based. Select your new empty light in the Object list and, under its properties, browse for your HDRI file under the Image Based Light File section. Use a flat, long-format HDRI and not a mirror ball style. Mudbox ships with examples under the Textures folder in your Mudbox install folder under Textures>Light Probes B.

03 Balance your lights

You can turn the intensity of any lights in your scene up or down by selecting them first in the Object list and using the Intensity slider in its property panel. This can be overdriven past the top value of 1 by simply inputting a higher number. Also, light cover for non-image-based lights can be changed by clicking on the colour swatch next to the Diffuse option in the Properties panel. By holding down the L key and left or right-clicking on the mouse you can rotate any selected light. Set up both your lights to get the look you're after C.

04 Materials

If you're trying to replicate the look of a subsurface shader in the Mudbox Viewport, you can approximate this by right-clicking over the model itself and selecting Edit Material. Now change the Incandescence colour to a dark red, but be careful as it's very sensitive indeed. This is important to approximate the effect a subsurface shader will have on any skin textures when you render it in your application later D.

05 Depth of field

Go to your Viewport Filters tab and turn on the Depth of Field filter. A good way to set this up is to set your Depth of Field value to something low, such as 40, so you can get a better idea of exactly where will be in focus. Play with the Focus Distance value to put into focus the part of your model you wish to be given more attention. Play with the Blur amount and widen your Depth of Field to taste E.

06 AO and Cavity filters

Turn on your Ambient Occlusion filter and set your darkness to a value that looks right (you can use the Only AO check box to isolate this effect) and play with the options to get an approximation of your final Ambient Occlusion at render time later. You can also stack a Cavity filter on top of this – simply set it to Best Quality and tune your Sample Radius and Strength as needed. You can then export either a screenshot or turntable from the relevant items under the Render menu F G.

Avoid a battle

If you're also using the Tonemapper filter, be sure to temporarily turn off any Ambient Occlusion or Cavity Ambient Occlusion filters you have active while you set up its parameters, as it will clash with them and darken your scene to near total black. This is because it can't change the value of the viewport filters mentioned. To get around this, after turning off all other filters, under the Adaption section turn the Adaption Time to 0. You can then set your Tonemapper the way you want it before turning on your other filters.

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3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, Mudbox, ArtRage and modo

modo 501

Tall CG grass

How can I create realistic grass in modo?

You have an important client calling up telling you they need a field of tall grass to use with a shot they commissioned for their campaign. The catch is they don't have enough time to shoot it and there is nothing they like on any stock library. What do you do? First, don't panic, this is the perfect time to show your client something different. Working to make a realistic field with CG is not as daunting as it may seem at first.

With anything that is of a realistic feel, it's best to have as many high-quality assets as possible. What I love about modo is its ease of use with respect to control of the assets you can make. You can start with creating just one quality grass asset and duplicate and change it from there. modo will enable you to assign texture maps to the ground plane to control density, size and normal values.

If you wanted to have grass following the edge of a path, for example, you could assign a UV to the poly plane and start to paint a density map to exclude the grass in that area. Now create another map to control the size of the grass right at the edge where the path and grass meet, giving the effect of new stalks coming through the worn pathway. All this control of your assets is a real help to start creating your field. Be mindful of the direction of your sun as you will need to think about applying Subsurface Scattering to all material elements that have a thinness of leaves, grass and the like. Also remember that shadows are not just black to be applied over the top with Multiply, shadows in nature are rich and complex.

Other options

This tutorial is a good start for you to make an impressively realistic field. You can make any amount of assets for use and having the ability to use image maps for asset control means a further level of natural detail. If redraw is getting too heavy you can set the Display Density to 10% under Replicator>Instancing. There's no limit to the amount of detail you can create and place in the scene. Remember that high-quality assets will make or break a scene, so take time in making them. As for post work, masks are king.

As with depth of field, nothing is all sharp, so make a depth pass within modo and create the beautiful lens blur effect with your image editor. Also, in post, paint in some slight haze and other particulate matter. Bugs, bees and butterflies also make the scene come alive when used sparingly. In the end have as many render passes as you can, Shadow, AO, Depth, SSS, Diffuse and Alphas make post work very easy and enhance your image.

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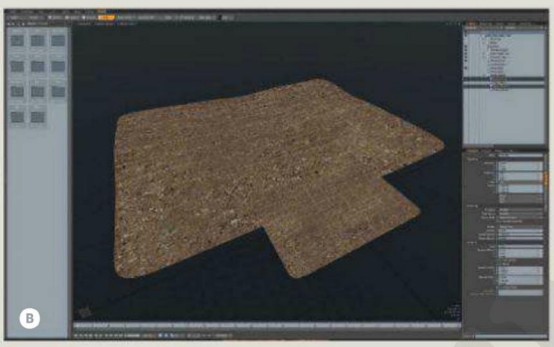
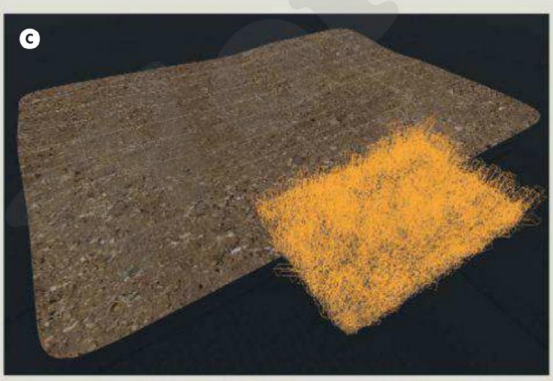
01 Assemble assets

Good assets make great CG images. Look for or shoot an image that you want to place into your field, this gives you good art direction for light, colour and form. I wanted tall grass so I made a long piece, duplicated it a few times and changed its shape slightly. Do the same thing for the wheat grass too A.



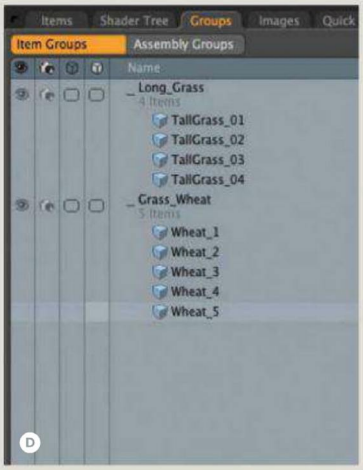
02 Ground plane for assets

Make two poly planes, one for the close-up and one for the distant, filler elements. Try to keep everything on a 1:1 scale so the first plane is about 15 x 10 metres the second, distant plane is around 45 x 30 meters. Give them a few divisions and sculpt some variations for a realistic feel. Assign separate materials to them (close grass, distant grass), but give them the same texture. I used Dirt 01 from the Materials>Organic>Dirt folder B.



03 Assign grass up close

Within the Groups tab make a Long Grass folder and place your grass models into this. In the Shader Tree create a Surface Generator called Grass Close within the Close Grass material group, Average spacing 10cm, Minimum Spacing 1cm and Particle Ceiling about 30K. In the Items tab make a replicator, Prototype Long Grass, Point source Grass Close. Random twist X=30 Y=720 Z=30, random scale Y=200% C D.

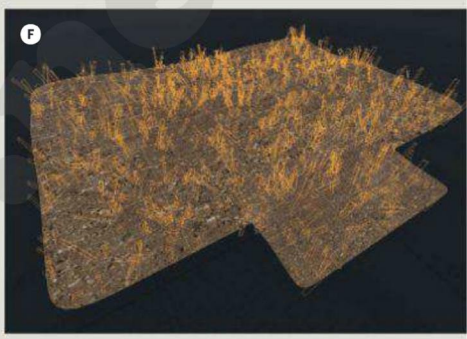


04 Assign distant grass

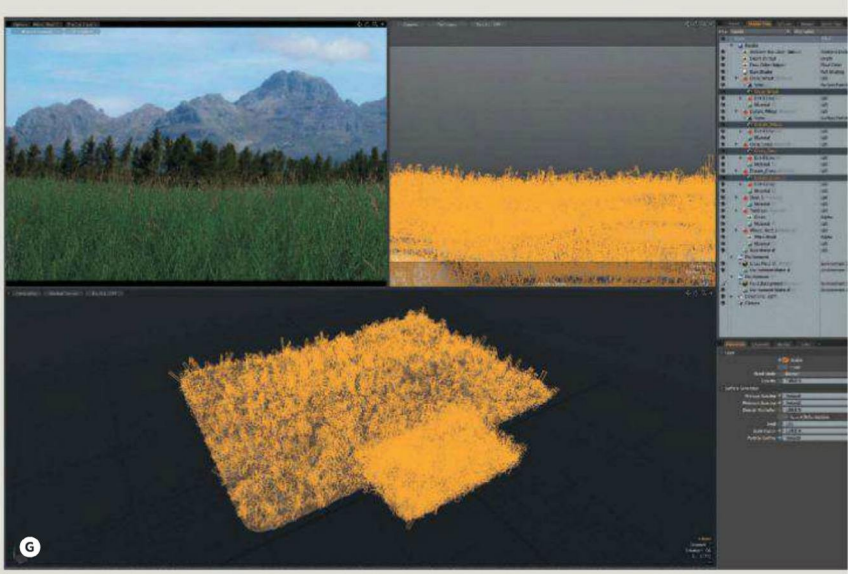
For the distant grass do the same as before with respect to surface generators and replicator creation. Don't forget to name them differently, otherwise you could easily become confused. This time set Average Spacing at 25cm, Minimum Spacing at 5cm and a Particle Ceiling of 100K. Set Random Twist: X=30 Y=720 Z=30, and a Random Scale of Y=100% E.

05 Wheat distribution

Duplicate both poly planes as you will need to use them for the wheat grass. Name them Close/Distant Wheat. Make a mesh group again just like the grass groups, named Grass Wheat. Again in the Shader Tree create two new Surface Generators called Close/Distant Wheat and place them respectively within the wheat material groups. Also in the Items tab create two new replicators.



As the wheat is less populated over the field we are able to change a few things. This time we can use an Enhanced modo texture, under Organic>Veins. Place this above the Wheat surface generators and set its effect to Surface Particle Density. You may also need to invert its colour. Our spacing is a little different here as we don't want it to cover the field like the grass, and this ensures a natural effect F.



06 Render setup

Here I used Ambient Occlusion and Depth Output and I placed an Alpha channel in all the materials folders I used for easy post editing. You have plenty of render options to use within modo to make post work a breeze. Use them to save loads of time G.

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Back to basics

In this article we'll learn how to create simple, fracturing effects using the free software, Blender

Blender

Fracturing objects in Blender

> This tutorial will help you master the process of fracturing geometry, through a simple yet effective workflow

Blender is an open-source software, freely available for everyone, both for commercial and personal use. Being developed by a wide range of coders, it becomes more and more popular among the professionals and enables you to create effects that a few years ago weren't possible even for highly developed film studios. In this guide I'll show you how to break objects inside Blender, using its built-in tools and physics-simulation engines.

Fragmentation of 3D geometry has become more and more popular during the last few years. At first these effects were reserved only for high-budget film productions but nowadays we can watch them in many TV commercials or low-budget animations. Digitally created physics are also supported by many, new-generation video and computer games. This enables us to experience the level of realism and interaction with 3D environments like never before.

Modern, physical CG environments are being constantly developed, enabling 3D artists to create more and more astonishing visual effects. NVIDIA PhysX or Open Source Bullet physics engine, are two of the most popular environments. Fortunately, Blender supports the second one, and we're going to briefly acquaint ourselves with its features and find out what effects we're going to achieve.

In comparison to commercial plug-ins for 3ds Max like RayFire or Pulldownit, Blender's Fracture tools at this moment are lacking quite a lot of useful features. The most important is probably a more consistent and Voronoi algorithm-based object shattering system. The one available at the moment works fine with simple objects, but for advanced use it could do with more options. The good news is that the proper scripts are under constant development and hopefully will be added to the official Blender build soon enough.

Let's get an overview of tools and techniques we'll be using. First of all, to enable Blender's Fracture tools, open the User Preferences window by hitting Cmd/Ctrl+Opt/Alt+U. Now, go to Addons and type Fracture in the search panel. Select the script and close the window. If you want, you can click Save As Default to automatically load the tools every time you launch Blender again.

A Final image created using techniques from this tutorial

B Setting up the scene ready for fracturing

C The Wireframe view is an essential feature of this tutorial

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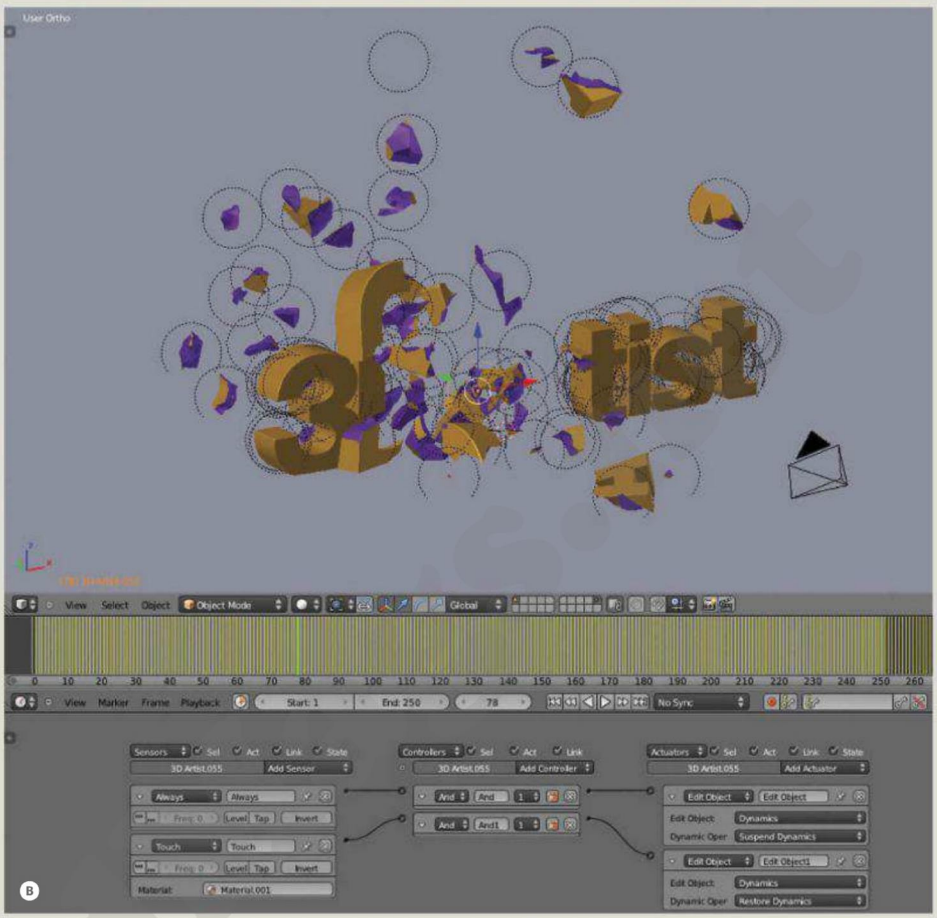
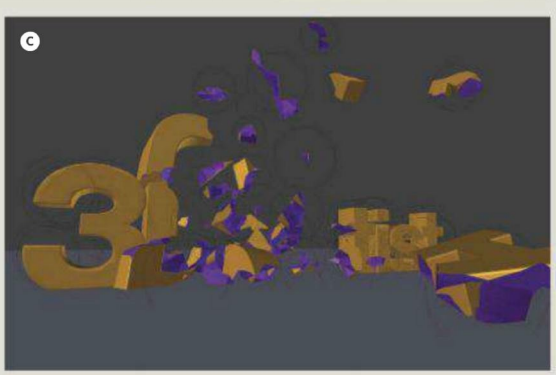


B

Unfortunately, Blender's Fracture tools are a little tricky to figure out at first. On the other hand, they're quite easy to use, so you should quickly remember the workflow. To start working, create any object and select it. Hit the Space bar, click the Search button and type Fracture. This way we can search through all of Blender's functions and tools, to find the one we want to use. If you choose the Fracture Object option, the selected geometry will be shattered into four or five pieces. To enhance the effect, you can press F6 and open a floating Options window, or hit the T key having the mouse cursor pointed over the 3D workspace. You should see a panel appearing on the left edge of your screen. There are the same Fracture Object options located at the bottom.

By using this simple method you can create many interesting effects, for example add some imperfections to buildings, create damaged surfaces or cracks in the glass. We'll be getting deeper into that later. Now I'd like to touch another technique, that won't be covered directly in the article, but you can try it by yourself – it's even easier than the first one.

This very common technique uses the Explode modifier together with Blender's particle system. Create an object, enter the Edit mode and add some subdivisions to your geometry. Next, add a new particle system and apply the Explode modifier from the Simulate group in the Object Modifiers tab. Now, when you press Alt+A, the particle simulation should start. If the geometry of your mesh is dense enough, you should see the single faces being ripped off the model as the particles continue to spread in the scene. The basic effect may be interesting in some instances, but I really encourage you to take some time and play with the particle systems by yourself. With animation being constantly played, you can see all the changes you make in real-time. For example, try changing the standard, Newtonian particle physics to a more natural and living one – the Boids system. This way, rather than exploding, your model will become a flying shoal of faces, acting like one living organism. For more creativity, you can always mix the two systems together – fracture and shatter the object and then apply a particle system to it.



C

To sum up, despite some limitations, Blender's physics systems give us many great tools and enable us to achieve very interesting effects. Maybe you won't be able to create destructions like in a movie, but you can still achieve great results for smaller, commercial projects. It all really depends on your creativity, production budget if working with a client and, of course, the available time. So let's now take a deeper look into the tools and techniques.

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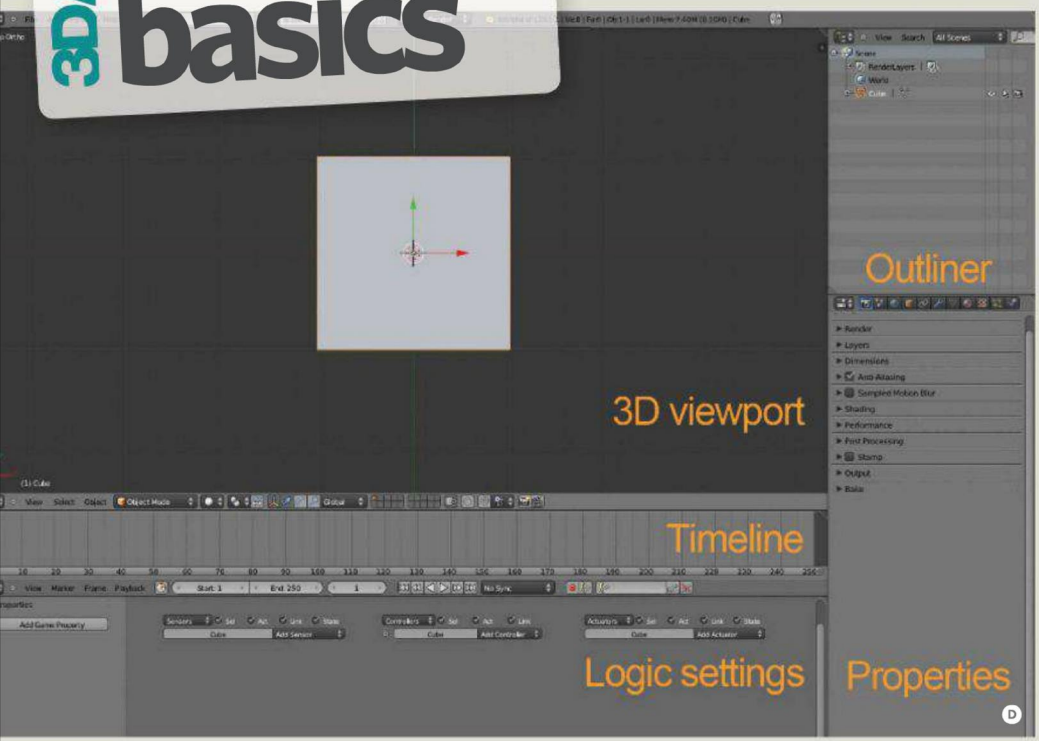
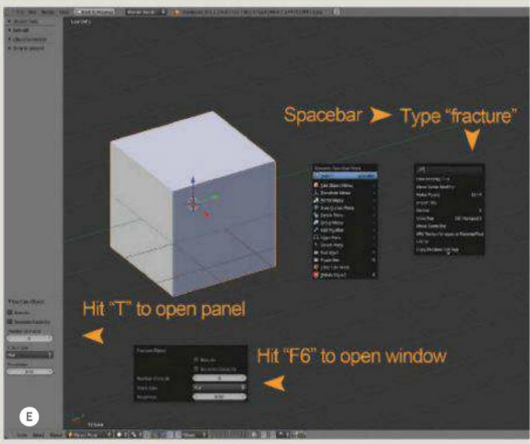
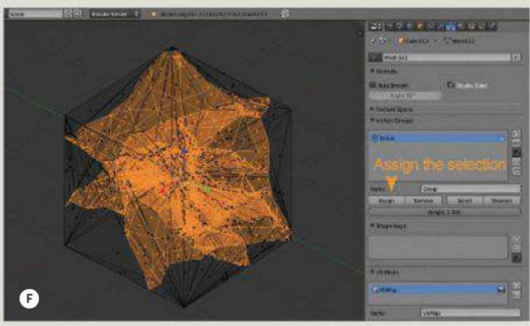
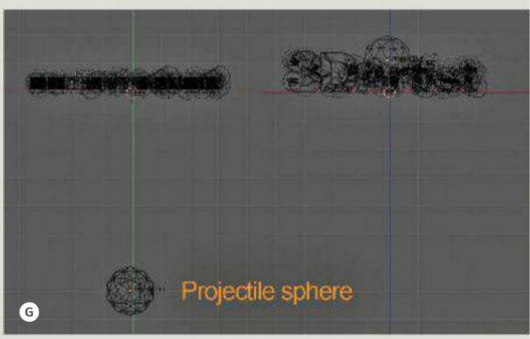
3DArtist Back to basics









Fracturing geometry

01 Prepare workspace

Before we start, it's good to change the default blender window layout to something more suitable. On the bottom-left and top-right corners of every window you can find a small triangle icon. By clicking and dragging, you can split every window and create new workspaces. To change the type of workspace click on the small rectangle button with two arrows facing up and down. We're going to use the Logic workspace later in this tutorial D.

02 Fracture the object

Before fracturing the geometry, apply its current scale and rotation by pressing Cmd/Ctrl+A and choose Rotation & Scale. Select your object, press the Space bar, choose the Search option and type Fracture. Click Fracture Object then press F6 to open the Settings window or move your cursor to 3D workspace and hit T. You should see a panel appearing on the left of your screen. Find the Fracture Object list and select the Execute option. Now, if you enter Wireframe mode (Z), you should see all the changes you make in real-time E.

03 Tweak the mesh

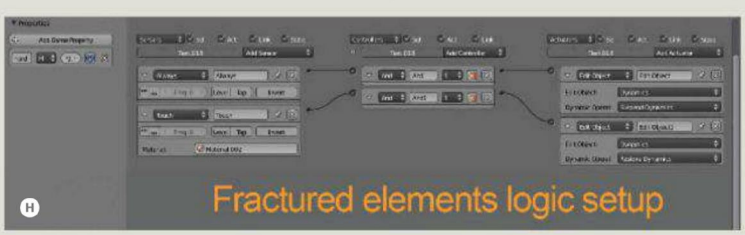
Sometimes we need to manually adjust our geometry after using Fracture tools in Blender. Delete duplicated parts if they appear, then select each mesh element and join them together into one object (Cmd/Ctrl+J). Now, select all of the outer faces, click the Object Data button in your Properties workspace and create a Vertex group. Assign a selection to the group. By this we can now quickly select the outer and inner faces of our object. This can be later used for creating different materials inside and outside of the object, particle systems, displacement effect and so on. Last, select everything and split the object to single elements again by pressing P and choosing the By Loose Parts option F.

04 Physic simulations

To animate and damage our fractured object, use Blender's rigid body systems. We need to set up the fractured elements. Select all of them and, in the Object Tools list, click the Origin to Geometry button. Next, press the Space, click the Search button and type Fracture again, just as in previous steps. Choose Setup Fracture Shards to apply physical attributes to the objects. Press Space bar again and repeat the process choosing add Projectile. Move the object along the Y axis. It will be used for demolishing our geometry G.

Uniform fracturing

When you're using fracture tools with higher shard values, Blender can create many duplicated fracture objects. In order to minimise this side effect, enable the Execute option for constant preview, and observe how the Shards are being distributed on your geometry. If your mesh is divided into many similar and unified pieces, it shouldn't cause bigger problems with duplicates.



D Blender enables you to set and freely tweak as many workspaces as you want

E You might want to switch off the Execute option for effectivity

F You can invert the selection and create a second Vertex group

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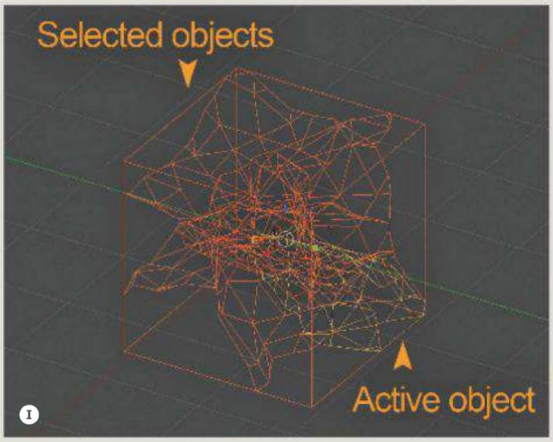

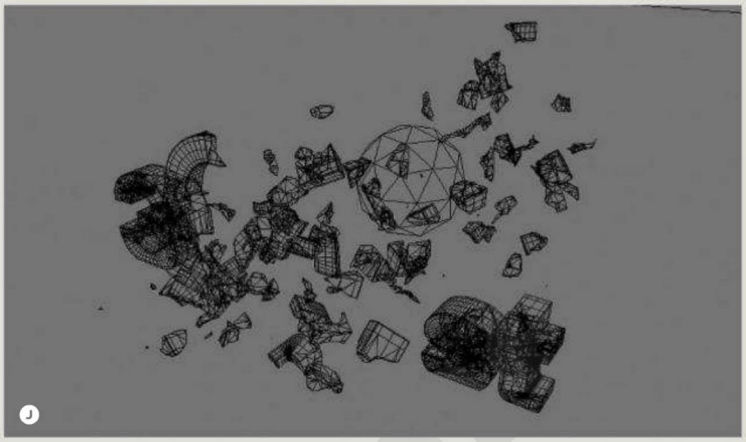

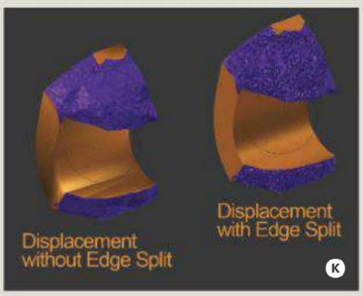

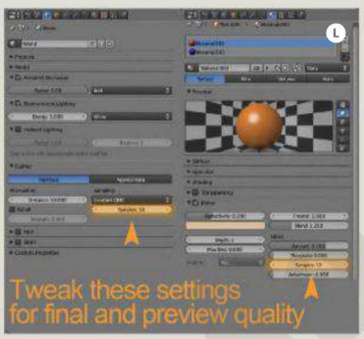

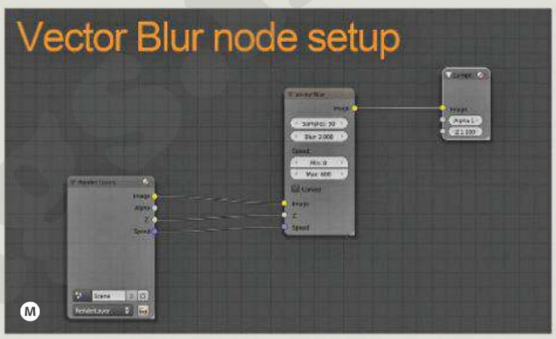

05 Logics Editor

Before launching a physics simulation, we need to define how our object would behave in the environment and during collisions. Select one of the fractured pieces and open the Logic Editor workspace. We have three groups: Sensors, Controllers and Actuators. If we were to run the simulation now, our geometry would simply collapse under the simulated gravity force but we can avoid that by adding Always Sensor and Edit Object Actuator. Select Dynamics under Edit Objects Property and join the nodes together. We will also need to change the Dynamic Operation to Suspend Dynamics H.

06 Game mode

To apply the Logic Editor's properties to other objects, select all of them, but point to the edited piece as the last one. Move the cursor to the Object bar, choose Game and click Copy Logic Bricks. To run simulation, change the Blender's engine from default to Blender Game. Now just press P and check the simulation. As you can probably see, our Projectile sphere hits the object, but nothing really happens. To change that, we still need to add one more attribute to the shattered geometry I.

07 Tweak the simulation

Let's go to the Logic Editor workspace again. Add Touch Sensor and one more Edit Object Actuator. Change the Edit Object property to Dynamics, but this time use the default Restore Dynamics operation. Assign your object's outer material to Projectile Sphere and select it inside Touch node. Apply the changes to the other pieces just like in the previous step. Run the game engine and now you should see the full simulation. Now to save the object's motion to animation keyframes. Press the Game button on the upper bar (Blender Game mode must be switched on) and choose Record Animation to run the simulation one more time J.

08 Enhance the look

Select a shattered element and enter the Edit mode. Using the Vertex Groups we specified earlier, apply two different materials to the outer and inner faces. Add a displacement modifier and choose the inner group for the one that would be affected. Add the texture that would push our geometry up and subdivide the inner faces of your model several times. To enhance the effect, create one more vertex group but this time with border offset from the outer faces. Choose this group in the Modifier settings and control the effect with the Strength and Midlevel sliders K.

09 Render settings

Our rendering setup is quite simple. Your materials should have some mirror reflections (for example 0.2) with Fresnel value set to at least 1.0 and Glossy Amount set to 0.8. I've been using plain Ambient Occlusion and Environmental lighting in my scene. The ground surface also has some reflectivity added L.

10 Motion blur

The last but optional step will be adding the motion blur to our still image. Open Blender's render settings and enable Vector Pass under the Layers list. Render the image and open the Node Editor workspace. Press Shift+A, select Filter and choose Vector Blur. Join the Render Layers node with the newly created filter based on the pin colours. Set the Blur value to 2 and increase the Samples value. Optionally you can also tweak Speed values for increasing the effect M.

Quick effects

Instead of making complex scene adjustments, we can use Blender's Quick Effects. Create any geometry and click the Object button in the lower panel in 3D Viewport. Select Quick Effects and choose the one you would like. Fracturing tools can also be a great way to add geometrical imperfections in your scene. For instance, you can create cracks in old and damaged concrete elements.

G Align all objects to the Y axis so the Projectile sphere might hit

H We can create many different object behaviours using the Logic tools inside Blender

I An active object has brighter edges in Wireframe mode than the other selected objects

J The best way to preview the simulations is choosing the Wireframe mode

K Edge Split modifier hides the triangulated faces causing any problems in shading

L For fast previews, you should use lower settings for rendering

M Higher Sample values may significantly increase the overall time for composition

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3Dconnexion SpaceMouse Pro

£297/$299 USD

The SpaceMouse Pro wants to change the way we navigate 3D space – will it be successful?

The button layout is thoughtful and convenient, with an extra four keys at the top open for customisation

The sleek design of the new SpaceMouse Pro is not only appealing to the eye, it is also extremely comfortable

The SpaceMouse Pro, from 3Dconnexion, presents the latest in a line of 3D navigation controllers. The new device seats itself firmly between the top of the line SpacePilot Pro and the SpaceExplorer, in terms of both pricing and practical capability.

Although key functionality remains the same among the range, the SpaceMouse Pro is no doubt a significant improvement upon previous iterations of the product line. The design, while excellent, has no doubt been gleaned somewhat from its bigger and more expensive brother, the SpacePilot Pro. This is no bad thing, however, with the overall feel of the mouse granting users an extremely comfortable, fatigue-free experience that is sure to impress.

3D mice, while perhaps not considered mainstream as yet, have gained massive ground since 3Dconnexion's conception in 1993 (so much so that the company now operates as a subsidiary of IT giant Logitech) and are slowly being adopted by the various computer-aided design faculties, including those of architecture, engineering, media and entertainment creation. Compatibility among applications is vast, with drivers available for everything from Photoshop to 3ds Max.

Upon connecting the SpaceMouse Pro, users are greeted with what is without doubt, a steep and initially daunting learning curve, prompting questions as to the usefulness of such a product among many artists. After two days of use, however, the SpaceMouse Pro suddenly becomes a far more feasible solution to problems we frankly didn't realise existed. The device acts as the de facto port of call before the keyboard in a good deal of general working tasks, such as modelling and setting up cameras.

Following the brief breaking-in period, a notable gain in productivity can be seen. The device is intuitive, comfortable and can be quickly customised so as to best suit user requirements. This makes for a generally pleasant all-round experience that will no doubt quickly become part of most users' native workflow.

The SpaceMouse Pro, is priced relatively keenly among 3Dconnexion's range at £297* GBP ($299 USD), with little else on the market acting as a comparable solution. The device features everything a professional user could possibly demand, with customisable buttons and well-placed shortcut keys (Ctrl, Alt, Esc) only helping to further seal the deal. However, for those who demand slightly more, it may also be worth considering the top-of-the-line SpacePilot Pro, which adds an LCD screen to the device, enabling users to read emails, check calendars and even receive RSS feeds without disrupting main screen productivity.

*Inc. 19% UK VAT

www.3dconnexion.com

Our verdict

Features	9/10
Ease of use	7/10
Quality of results	10/10
Value for money	9/10

"A steep learning curve, but overall an excellent device that will greatly benefit any workflow"

Final Score 9/10

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SprayTrace 1.1 £199.00 / $313.00*

Hitting Escape to cancel your render can be a thing of the past with SprayTrace in your toolset

The last few years have seen an increase in real-time rendering solutions that can be integrated into 3D software. Holomatix first ventured into this area back in 2006 with Rendition. Since December 2011 Rendition has been retired, its successor is SprayTrace which builds on the foundations of Rendition technology. But rather than a rebranding exercise, you'll be pleased to hear this is a whole new product.

SprayTrace 1.1 is a real-time render preview tool for mental ray in Maya. It specialises in bringing interactive feedback to artists, enabling them to make informed changes on the fly such as adjusting materials, lighting, render settings, cameras and so on. mental ray is still used for the final production render. You don't need any fancy new hardware either, as it uses the CPU rather than the GPU.

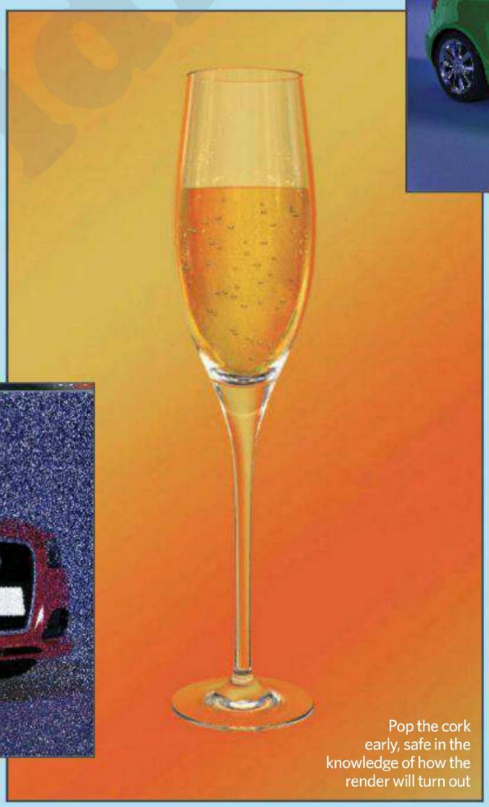
One of the key benefits, compared with other solutions, is there's no learning curve. After installation, you just hit a button on Maya's Shelf and SprayTrace opens in a window, rendering a preview of your mental ray scene. When you make changes, the preview updates. Being a separate application, it's an added bonus that in the event of it crashing, unlike Maya's IPR, it doesn't take down Maya.

Alongside bug fixes, the 1.1 update offers some new time-saving features that are useful for image analysis. Drawing a render region marquee in the viewer, priority renders the chosen area. Render regions can be zoomed into and placing the cursor in the viewer priority renders around it. Rendering can be paused and renders can be saved as image files in standard image formats. Linear colour workflow support is also available.

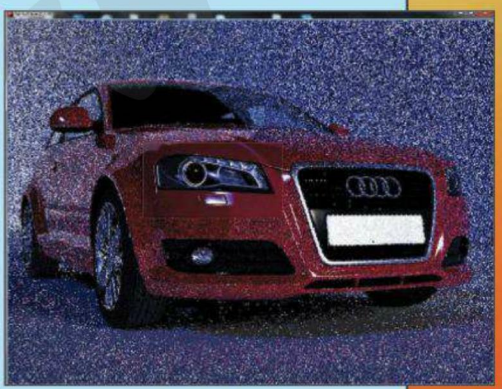
Improved support for mental ray features include beta support for SSS; however, several mental ray features such as GI, Subdiv surfaces, fur, render proxies and render passes are not yet supported. In addition, third-party custom shaders work out of the box and some don't. For example, during testing there was no support for MentalCore, while other Shaders downloaded from www.creativecrash.com worked well. Windows 64 and Maya 8.5, 2008 to 2012 is a requirement also. Mac and Linux versions are due mid-Spring.

Understandably, there are several important mental ray features and a lot of third-party Shaders that Holomatix will need time to add support for, and at present this can be a barrier depending on your project requirements. However, as a look-development tool, SprayTrace is very useful for providing fast and accurate feedback. All this should help you deliver on schedule, for even the most indecisive, demanding client or director.

Assessing preview renders with SprayTrace helps you reach your final destination with fewer detours



Pop the cork early, safe in the knowledge of how the render will turn out



Render Region enables you to get better renders by focusing in on problematic areas

www.spraytrace.com

*Currency conversion using www.xe.com

Our verdict

Features	7/10
Ease of use	10/10
Quality	9/10
Value	8/10

"Delivers accurate real-time previews but needs further third-party support"

Final Score 8/10

WorldMags.net

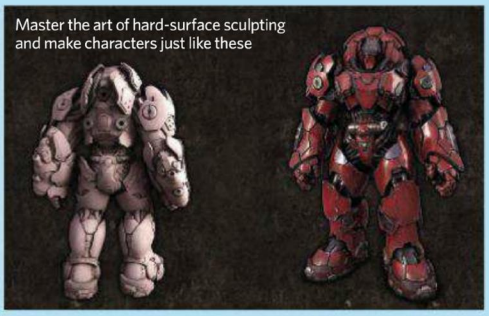
ZBrush Hard Surface Techniques

DVD + download $64.95/download-only $59.95

Comprehensive training focused on sculpting a detailed mechanical character from concept mesh to completion

Fans of *Transformers*, *Iron Man* and *Real Steel* are sure to lap up this offering from Eat 3D, which reveals tools and techniques for sculpting a sci-fi mechanical asset using ZBrush 4. Training is geared towards intermediate to advanced users, which is unclear from the website or introduction. Instructor Mike Jenson starts the 19 chapters of training discussing the custom UI he uses, which may leave beginners bemused from the outset.

The basics of hard-surface sculpting, as a primer for the project, are outlined next in a clear and concise manner. A largely complete concept asset is then loaded and worked up, instead of being created from scratch, which is a let down. The concept mesh is used for each body part of the final hard-surface sculpt as a way to create clean meshes, but occasional cuts have been made in the video in this section to skip over small areas, which is jarring and sometimes makes following along trickier.


Master the art of hard-surface sculpting and make characters just like these

Finally the mesh is decimated and sent to 3ds Max, where concepts for texturing and rendering with V-Ray are explained. Passes are then composited in Photoshop with wear and tear added. Despite the training skipping over small bits, this tutorial offers a production pipeline with a solid final result.

http://eat3d.com

Our verdict

Features	7/10
Ease of use	7/10
Quality of results	8/10
Value for money	7/10

"Quality training, lacking a full guide to concept creation from beginning to end"

Final Score 7/10

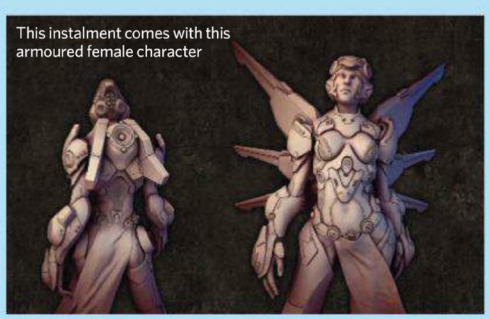
ZBrush Hard Surface Techniques 2

DVD + download $64.95/download-only $59.95

Hard-surface sculpting is all the rage since ZBrush 4R2, and Eat 3D is on hand to help you master the technique

***Hard Surface Techniques 2* is a reboot of the original, rather than a continuation.** This time around Mike Jenson walks you through sculpting a Valkyrie-style character. It uses ZBrush 4R2 techniques and by comparison has several improvements in tutorial structure so it won't leave beginners frustrated.

It begins by showing how to create a custom UI rather than a tour of a custom UI already set up. You're then introduced to workflow and tools, such as the new base mesh generation DynaMesh tool you'll use later. Concepting the character is shown from start to finish from a no-frills female base mesh, which is a great improvement.


This instalment comes with this armoured female character

You then begin sculpting the final cleaned-up armour. The workflow here relies on a technique using topological tools, paying attention to edge flow, then transforming into DynaMesh and cleaning up the mesh. Details are then added using custom brushes, which are supplied along with the scene files.

The penultimate chapter takes a quick look at posing the character and includes a part on cloth simulation in 3ds Max 2012, for the loincloth. The training completes with a clay-style rendering chapter using V-Ray 2 and Photoshop to comp. A clear improvement over the original that's suitable for anyone with ZBrush 4R2.

http://eat3d.com

Our verdict

Features	9/10
Ease of use	9/10
Quality of results	10/10
Value for money	8/10

"This sequel is a must-have for anyone looking to learn hard-surface sculpting"

Final Score 9/10

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Artist info

José Alves da Silva

Personal portfolio site www.artofjose.com
Country Portugal
Software used ZBrush, 3ds Max, Photoshop, mental ray

"In *A Break from Bamboo* José has not only presented an immediately likable CG character, but he has demonstrated his masterful expertise when it comes to posing, texturing and creating ultra-realistic hair and fur"

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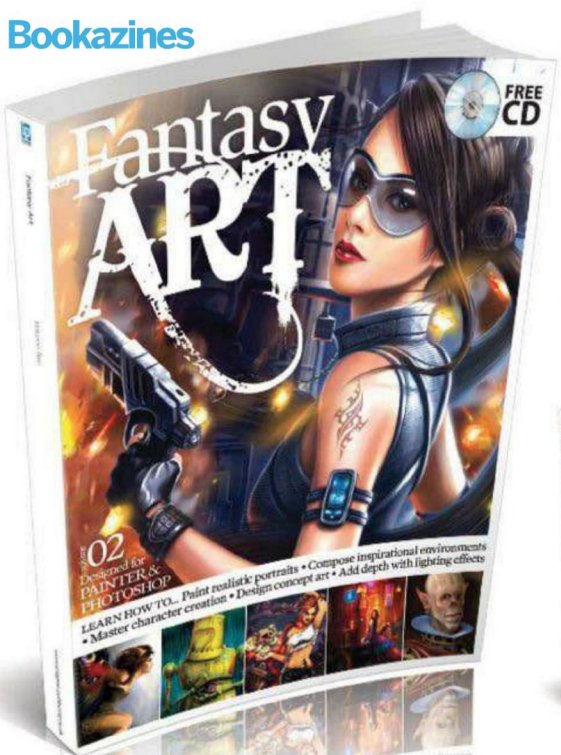
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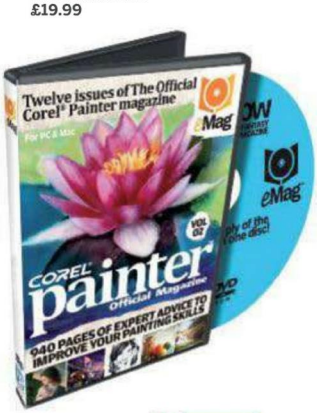
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Inside guide to industry news, studios, expert opinion and education

> "The ability to control complexity is what is going to make generative modelling a very important factor in product design"

Michiel Cornelissen considers the future of product design. Page 108

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How an opportunity to work at Philips Design after graduation helped pave the way for this product designer

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BA Fine Arts in Digital Art & Animation

DigiPen's four-year degree course is designed around an industry where adaptability is key

inside

E 5.55

This 3D-printed necklace holds 111 coins in place, making a stunning masterpiece that was only possible using 3D printing technology

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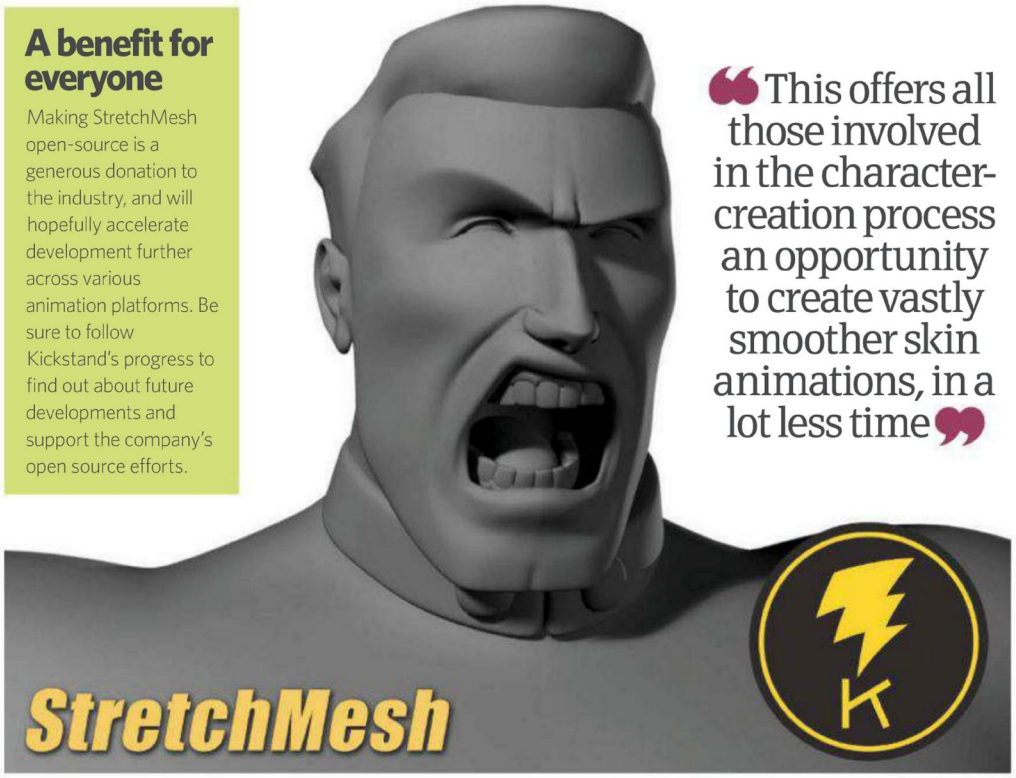
A benefit for everyone

Making StretchMesh open-source is a generous donation to the industry, and will hopefully accelerate development further across various animation platforms. Be sure to follow Kickstand's progress to find out about future developments and support the company's open source efforts.

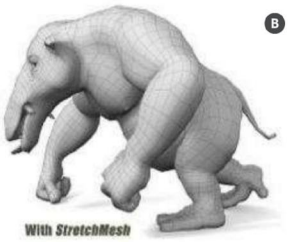


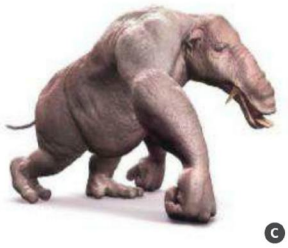
© 2011 Kickstand

A

> This offers all those involved in the character-creation process an opportunity to create vastly smoother skin animations, in a lot less time

B





C

StretchMesh to go open-source

Kickstand campaigns to make its surface deformation software available to all

A StretchMesh, by NY-based Kickstand, is set to be released shortly as an open-source package, enabling users to adapt and integrate the source code according to their needs

B StretchMesh can yield instant effects, turning a sub-standard result into something resembling a far higher poly mesh in only a few clicks

C The plug-in greatly reduces jaggedness in character skins, enabling them to flex and bend effectively. This makes for an overall more impressive result

New York-based Kickstand, a character research and development company, is making waves in the VFX industry with a push to make its innovative skinning software StretchMesh released as an open-source package.

The Kickstand team, which has ties with DreamWorks, developed StretchMesh as a means to accelerate the character pipeline and create a more natural end result. The plug-in gives polygonal geometry a stretchy quality, giving users better control over the movement of CG characters.

Currently StretchMesh is only available as a commercial release for Maya, integrating as a standard deformer and achieving consistently excellent results. All this is set to change with the open-source initiative that will open doors for major software developers such as Autodesk, Luxology and Maxon to integrate the product into future releases.

StretchMesh's current release boasts some incredibly effective results and features Advanced Relational Vertex and Shape Preservation technology. This offers all those involved in the character-creation process an opportunity to create vastly smoother skin animations, in a lot less time.

The plug-in is multi-threaded and plays host to several more advanced character-animation features, including: surface collision with objects, real-time deformation and relaxation operators, a painting interface for users to paint attributes such as stiffness and attractor influence onto specific areas, plus curve attractors.

The campaign is of course not without its associated cost, much like any major development drive. Kickstand is currently seeking donations towards its efforts to aid the process and to help make the project possible. Those who wish to contribute to the cause may do so at **www.indiegogo.com/stretchmesh-for-autodesk-maya**. Be sure to also visit **www.kickstand.tv** to see StretchMesh in action for yourself.

> The open-source initiative... will open doors for major software developers... to integrate the product into future releases

More from Kickstand

Kickstand R&D department has also created SteamPipe, a highly customisable asset-management program designed to meet the needs of both artists and technical directors. True to form, an open-source plug-in for Maya has also been released: openPipeline, which although less feature-rich than StretchMesh, is well worth exploring.

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London-based 3D artist Ross Board rounds up the world's 3D news

Digital Domain expands into China

A partnership with Beijing's Galloping Horse Film Co addresses China's growing film demands

Digital Domain is set to begin operating a Far Eastern satellite alongside Beijing's Galloping Horse Film Co in the near future, following the announcement of a joint venture agreement.

The collaboration is set to provide visual effects, animation and production services for motion pictures and related media. The facility is expected to be of a similar size to the Digital Domain studio in Port St. Lucie, Florida – which is also currently nearing completion.

This not only grants Digital Domain significant power in the rapidly accelerating Asian film market, in which American visual effects values and prowess are highly desired, but enables The Galloping Horse Film Co to have a direct route into Western markets.

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Beijing Galloping Horse Film & TV Production

3D Storytelling Conference 2012

The free international conference will host workshops and seminars by industry leaders

Held in the award-winning Ravensbourne College campus, the event will feature several high-profile speakers

The free 3D Storytelling Conference will be hitting the UK in March, offering a host of workshops and seminars from industry experts and stereographers including the likes of John Cassy (Director of Sky 3D), Chris Parks (Vision 3) and Adam Scunthorpe (Dimension Media).

The two-day event will take place in the RIBA-nominated Ravensbourne College building near the O2 in London on 22-23 March. Free tickets can be booked online at **www.3dstorytelling.co.uk**. This event should be a great opportunity for those who aspire to take their work into the third dimension!

Software shorts

Bringing you the lowdown on product updates and launches

WetWork Snow Plugin 2.0

Italian developer WetWork has released its latest plug-in for RealFlow. Priced at €470, Snow Plugin 2.0 offers convincing snow simulation within RealFlow, including flexible friction, snow piling and fractured structure generation. Video demos are available at **www.informatica-3dart.it**.

V-Ray 2.20.01

Chaos Group has been busy again, this time with the release of V-Ray 2.20.01 for 3ds Max, featuring support for Ornatrix Hair alongside V-Ray's own hair shader, as well as support for Ptex files and MetaSL. Available now, you can check out the full list of improvements and new features to V-Ray and V-Ray RT at **www.chaosgroup.com**.

Parametric Array 2.5

Torabi Architect's Parametric Array has reached version 2.5, offering new features aplenty for those seeking a parametric modelling solution in 3ds Max. Version 2.5 sees major interface enhancements alongside a series of revised controllers. There are also two brand new intersection and mesh controllers. Visit: **www.torabiarchitect.com**.

Insightful snippets

The challenge of engaging with customers online grows

Autodesk

A recent report commissioned by Autodesk has revealed that capturing the attention of consumers online is becoming increasingly difficult, since users are quick to compare visual content to the latest high-budget Hollywood blockbusters and television shows.

A lack of budget may not be as important, though, as David Ericksson, CEO of Stockholm-based digital agency North Kingdom explains: "The fire-starter is always storytelling. If both the story and the experience are good, people will talk about it in their social networks."

The interactive marketing spend is thought to hit $77 Billion by 2016 – a 100% increase on 2011. For the full report, visit the Autodesk Digital Media Facebook Page: **http://tinyurl.com/free-forrester-research-study**.

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A look to the future

The world's smallest magnetic storage device houses 1 bit of data in only 12 atoms

Though it may be many years before it is refined into a product, IBM scientists have recently hit the theoretical limit for magnetic storage, fitting one bit of data into a 12-atom arrangement.

The technology relies on antiferromagnetic bits placed at an appropriate distance apart to avoid data disruption. Below 12 atoms, scientists found that information was randomly lost, owing to quantum effects. Currently an average hard drive requires around one million atoms to store one bit of data, according to scientists at IBM. This revolution in magnetic storage science could lead to far denser storage in the coming years.

The experiments were carried out at a temperature of around -458 degrees Fahrenheit, although it's believed to make the atoms consistent at room temperature. In reality there would be around 200 atoms per bit of data.

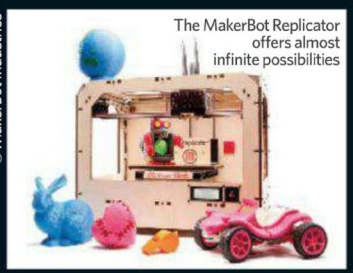
© IBM

One whole byte of data assembled in atomic form

New tools

The MakerBot Replicator brings 3D printing to the home closer, for under $2,000

Constantly pushing the boundaries of home 3D printing technology, MakerBot unveiled its latest offering, the Replicator, at CES 2011. This latest printer boasts a much larger build envelope than previous generations – roughly the size of a loaf of bread – and can work with either ABS (LEGO® plastic) or PLA plastic (biodegradable). Assembled in Brooklyn by skilled technicians, the Replicator is ready to go within minutes and is priced at a tempting $1,749 USD. Visit **www.makerbot.com** for more information.



© MakerBot Industries

The MakerBot Replicator offers almost infinite possibilities

Resistance 3

Insomniac Games used Autodesk Entertainment Creation Suite to create the sci-fi adventure

© Sony Computer Entertainment / Insomniac Games

Capelli battles occupying Chimera creatures

Insomniac Games's recent blockbuster *Resistance 3* takes users on a sci-fi quest. The story advances from *Resistance 2*, where players took on the role of a failing human resistance soldier, Joseph Capelli, in an attempt to save the world from the invading Chimera creatures.

Developed in conjunction with Sony Computer Entertainment and exclusively for PS3, the game relied upon a series of Autodesk solutions throughout the creation process, including Maya, Mudbox, MotionBuilder and middleware product, Scaleform.

"Autodesk software is at the core of our creative pipeline and enabled us to tackle the elaborate visuals that are so integral to the game's narrative," said Jacinda Chew, art director, Insomniac Games. "The interoperability between the programs enabled us to work faster and more efficiently than we have on past instalments of the game. We could more quickly create and move assets between the programs to shape these different environments and characters."

MotionBuilder software was vital for the game's cinematics. "We enjoyed how easy it was to assemble and edit character data, audio and cameras in MotionBuilder software's Story Mode," cinematics director Kevin Grow further explained.

The .FBX interchange format

Insomniac Games went on to mention its use of the fairly new .FBX format. As Kevin Grow explains: "Autodesk .FBX data interchange format made it very easy to move our assembled clips from MotionBuilder into Maya for export to our game engine."

Congratulations to...

The International Imaging Industry Association present Nokia's Eero Salmelin with a Leadership Award

© I3A

The International Imaging Association (I3A) has a long history of recognising the leaders in the technological world of today – a list that now includes Nokia's head of imaging, Eero Salmelin.

Salmelin is recognised as one of the pioneers of the once-baffling concept that a camera might one day converge with a cellular phone. During his career as a camera engineer at Nokia, he has witnessed the company become the largest camera manufacturer in the world.

Meet the masters with Wacom

Learn to use your tablet like a pro with Intuos4 training by international experts

A company always keen to push the boundaries of what can be done digitally, Wacom has released a series of training DVDs featuring an instruction series focusing on the flagship Intuos4 range. One disc ships free with all new purchases of a tablet and the series is also available direct from Wacom's online store for £69.95.

Topics covered include: painting in Photoshop, photo illustration, drawing in Illustrator and a Corel Painter crash course. Available now from: **http://uk.shop.wacom.eu/products/intuous4.**

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The Intuos4 family offers tablets in a variety of sizes to suit

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Project Focus

Glass Boy

Snowball VFX illustrates the fragility of life with a shattering reduce-speed commercial

Watch 'Glass Boy' on Snowball's Vimeo channel at **http://vimeo.com/33153644**

A

B

C

D

E

snowball | studios

Project Glass Boy

Description When the Ministry of Transportation in Israel wanted a new safety campaign, Snowball VFX offered a creative solution to transform the human body into brittle glass, showing a child at his most fragile as he steps onto the dangers of a road.

Client LAPAM for the Ministry of Transportation

Country Israel

Software 3ds Max, V-Ray, Fusion, After Effects, SynthEyes

Company Snowball VFX is a leading visual effects and animation studio in Israel, launched back in 2004. During the past three years, the company has fast become a leader in the Israeli TV commercial industry as it strives to battle extreme creative challenges in the face of ever-shrinking deadlines. Reshaping and reviving brands, the studio currently employs a core crew of 60, combining talent from across the globe with cutting-edge technology to develop high-end content for TV and commercials.

Website
www.snowballvfx.com

Contributors

Roni Kleiner Director
Mialma Production company
Yoni Cohen CG supervisor and creative lead
Ariel Levental Compositing lead
Matan Halberstadt Simulation lead
Natan Ivan Simulation artist
Aviv Bar-Ami Modelling and rigging
Eran Lazar Character animation lead
Zohar Shahar Character animation artist
Omer Erlich On-set supervision and camera tracking
Chen Hillel Shading artist
Amit Shvechter Rendering artist

To secure the pitch, the stakes were high for Snowball VFX to come up with a strong creative treatment to inspire ad agency LAPAM to move forwards, "We are constantly in search of new challenges," Yoni Cohen, chief creative officer at Snowball VFX says. "The beauty of TV commercials is that you get a variety of high-end projects to sharpen up your teams' skills... that will be utilised in creating a TV series."

The spot shows a boy stepping off the curb, transforming into a walking glass statue with all the believable caustics and reflections you'd expect from a person built of glass. As he strides across the street, a vehicle knocks the child down, shattering him into several hundred jagged pieces. The glass shards reform in a time reversal, slow-mo sequence before a repeat performance. The car hits the boy again, but this time at reduced speed, leaving the boy intact.

With the spot so focused on the delicacy of the character, getting that perfect glass look was of key importance to both studio and client. "We wanted it to feel fragile and yet still be able to reveal the expression on the boy's face before impact," Cohen explains. "We used V-Ray for the main glass pass and a fake mental ray shader for the milky version of the glass. The final mixture was done in Eyeon Fusion." To realistically shatter the glass, Thinking Particles 4 lent a helping hand in 3ds Max, using the new Volume Break features along with Shape Collision to handle the dynamics. A procedural system was also devised to give convincing results, involving three layers of fracture. Cohen explains: "The first layer broke the whole kid into some large pieces. Then we selected pieces that were close enough to the hit point and broke them in a star shape. Finally, we selected the star pieces and broke them again in a random form."

> "We wanted it to feel fragile and yet still be able to reveal the expression on the boy's face"
>
> **Yoni Cohen,** chief creative officer, Snowball VFX

A 'Glass Boy' began with a 3D structured light scanner from Mantis-Vision. "Stay away from kids and animals while scanning," Cohen teases, "they will drive you nuts!"

B Once the scanned data was cleaned up, made ready for rigging, and the live-action shoot was complete, the team used SynthEyes to track the data and prepare the scenes for the animators

C Motion blur and depth blur effects are less forgiving in transparent objects, so the solution was to do it in 3D in a single pass, leaving the freedom to the 2D compositing artists

D Working with Thinking Particles enabled Snowball VFX to work closely with the director on the look and change things quickly. The simulation automatically updated the changes

E The shots were composited in Fusion. The trick was to re-create contact shadows and caustics that would naturally occur in a glass object, using various channels

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Studio Access

Boardwalk Empire - visual effects

Brainstorm Digital co-founder Richard Friedlander explains how the studio's Emmy-winning work on the HBO drama has changed the paradigm of television production

BRAINSTORM DIGITAL

Brainstorm Digital defines itself as an innovative studio, determined to push itself creatively and technically with its film work, all conveyed with passion for the form. *Boardwalk Empire* actually represents the studio's first ever move into television since it was founded in 2006

www.brainstorm-digital.com

Project *Boardwalk Empire – visual effects*
Description Bringing to life Prohibition-era Atlantic City as well as other key parts of America in the Twenties, Brainstorm Digital meets the needs of *Boardwalk Empire*'s ambitious story through its epic and painstaking recreations of times gone by. The project also encompasses mapping wound effects onto the face of one of the show's characters
Country USA
Studio HBO
Software used Photoshop, Maya, NUKE, MARI, Houdini, proprietary 3D tracking software

Key people

Richard Friedlander
VFX producer and co-founder

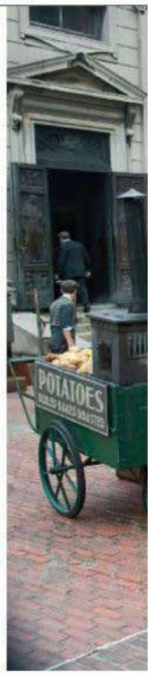
Compared to film, television has traditionally been a restrictive medium when it comes to effects. In recent times however, cable networks in the US are stepping up the game in the serialised storytelling stakes, which is also being reflected by the amount invested in VFX. HBO's *Boardwalk Empire* is way ahead of the pack, thanks to Brainstorm Digital's jaw-dropping and historically authentic replication of Prohibition-era Atlantic City.

The studio started work on the show in 2008, when the producers were trying to find a way to bring Atlantic City's iconic boardwalk to life within the show. "The producers came to us in the fall of 2008 with just the pilot script and said, 'How do we do this? How can we create this world of 100 years ago? We're not quite sure of the approach, and HBO is very sceptical that we'll be able to pull this off successfully, especially since we feel the exterior... of Atlantic City is as much a character in this series as any of the actual characters, and the environments play an important role,'" says Richard Friedlander, VFX producer and co-founder.

Brainstorm Digital managed to get HBO to settle on a fully CG matte-painting approach, which has encompassed massive levels of historical research, as well as a deep collaboration with the production designer on the show to ensure consistency with the set design. "We worked very closely initially with the production designer from the art department to make sure our visual effects design coincided, and there was also a production researcher who researched everything for us and provided us with a wealth of visual reference... we had a huge library of how everything looked back then, so everything was accurate to a T."

The proprietary 3D tracking software used by Brainstorm Digital has helped reduce the time it takes to create builds, as the vanishing points and correct perspectives are in-sync with what is being filmed on-set. "We have very good 3D tracking capabilities, we created for Atlantic City and the entire boardwalk area a survey model in 3D to establish the build, and then we always build on top

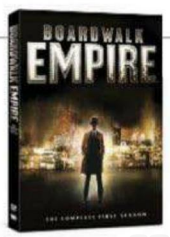
When it comes to new effects, Brainstorm is consulted during the scriptwriting phase by creator Terrence Winter as to whether something is possible



portfolio highlights

Brainstorm Digital has an impressive track record with credits including:

2011 *The Adjustment Bureau*
2010 *Going the Distance*
2010 *Remember Me*
2010 *When in Rome*
2009 *The Road*
2008 *Burn After Reading*
2007 *August Rush*
2006 *The Da Vinci Code*



Boardwalk Empire is available on Blu-ray and DVD now

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of that," says Friedlander, noting that they only use this model as a reference. 3D tracking means it takes less time to turn over the shot to the matte-painting team, who create a variety of both 2D and 2.5D work. Compositing is mainly done in NUKE, while matte paintings are created in Photoshop – though when it comes to the CG phase, the team has also started to employ MARI's digital-painting tool.

Friedlander explains that the 2.5D work is done to enable more fluid camera movements for the crew, something that has fostered the signature cinematic quality of the series – this was particularly key when the show had filmmaker Martin Scorsese direct the pilot episode. "He likes to move his camera, he likes a very fluid camera, to put it on dollies or cranes and have steadicams," Friedlander explains.

Such a methodology came to define the entire first season, with the second pushing Friedlander and his team even further – not in quantity, but rather in the richness of what they were portraying, including a gorgeous, period-accurate cityscape of New York. "First season, there was a higher volume of shots, second season, lower volume, but the shots themselves were more complicated. We actually prefer [the scenario] in the second season where there are more hero shots and... challenging shots that are much more interesting to us, than just standard blue-screen compositing." *Boardwalk Empire* is available on Blu-ray and DVD now.

> "We prefer [the scenario] where there are more hero shots and... challenging shots that are much more interesting to us, than just standard blue-screen compositing"
>
> **Richard Friedlander,** VFX producer and co-founder, Brainstorm Digital

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A Cinematic leanings apply to every aspect of *Boardwalk Empire*'s production, in front of the camera and behind it - Brainstorm Digital has brought that same credibility to the visual effects

B Working so closely with the productions staff has made Brainstorm a crucial part of the show's development – we're expecting the upcoming third season of the show to visit even more antiquated locations

C TV effects have never been approached in this fashion, before – between this and HBO's *Game Of Thrones*, VFX has suddenly become a major priority in this newly acclaimed televisual space

D Changes to the boardwalk CG have to be made, depending on the cinematography for a specific episode or the lighting. The show has been praised for its historical authenticity

E Though a large stretch of the boardwalk was built physically in Brooklyn, Brainstorm Digital works closely with the production designer to ensure a seamless transition into the boardwalk's computer-generated vista

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Industry insider

Michiel Cornelissen

Product designer

Nurtured through a decade of experience at Philips Design, Michiel has an evolved a passion for making the impossible possible

About the insider

Job Product designer

Location The Netherlands

Education Industrial Design Engineering at Delft University of Technology

Company website www.michielcornelissen.com

Biography Michiel Cornelissen has had a sweet and sour journey, with the majority of his learning happening after graduation, at the almighty Philips Design. After a decade at Philips Michiel went solo in 2009 to combine work for clients with the creation of his own beautiful products, including jewellery, homeware and electronics accessories.

When Michiel Cornelissen graduated with a degree in Industrial Design Engineering, he had the suspicious feeling that he'd been taught everything and nothing. Fortunately for Michiel, what had been imprinted in his mind was the powerful ability to problem-solve and tackle almost anything in a structured way.

With almost no one in his year going on to become a product designer, Michiel felt he had a lot to learn after graduation. "I was incredibly lucky to land a job at Philips Design in The Netherlands, right at the time when director Stefano Marzano started doing some pretty revolutionary, future-oriented projects there," Michiel says. "A lot of incredibly talented people were working there at the time – it almost feels like my first years there were sort of a postdoc in product design!"

Now the founder of his own design studio in The Netherlands, Michiel remains fascinated by designing what was previously impossible. Here he shares his experiences and influences.

3D Artist: *What is it that excites you most about product design?*
Michiel Cornelissen: I like to do new stuff. Things that make people look and say, 'Hey, I didn't realise this was possible!' The other thing is to find that one expression of a product that makes it exactly clear, in the simplest possible way and [precisely] what it is that you're trying to bring across.

3DA: *Can you talk us through the ideas process when you begin a new invention?*
MC: It's a bit more structured when I'm working on a project for a client, but with my own products it somehow seems to start with this seed – some visual image of something that *should* be there, but isn't yet. After that, it's almost like I'm trying to [find] what exactly that first image was. Sometimes it takes hours to get from there to a product design, sometimes years, and sometimes you never get there, which is okay. It's better to work on one good idea than a hundred mediocre ones.

3DA: *What software do you use?*
MC: I've been using Rhino since it was in its first beta versions – it's like an extension of my hand now. I use V-Ray for rendering. I wish I'd discovered Rhino's generative modelling Grasshopper plug-in earlier. I'm just getting into that, and I think it could be a game-changer. The ability to control complexity is what is going to make generative modelling a very important factor in product design.

3DA *Can you tell us how you established your own company in 2010?*
MC: It took a fairly dramatic event to make me do it, because starting out on your own can of course be scary. In a way my bad luck was getting a dream job right at the beginning of my career. When you're doing product design and creative direction for such a renowned organisation as Philips Design, it can be hard to find something better to move on to.

One day around Christmas 2009, a perfect storm of stress from my day job and personal projects I'd started doing, in combination with some bad habits of working too much, too late and in less-than-ideal ergonomic positions made me crash. Physically, crash. I was hospitalised with some kind of a neck hernia, and I was unable to even get out bed for weeks... The rational thing would have been to keep my job for as long as possible, where I'd have good insurance and social benefits and all that. But there was a much stronger force that made me realise that I hadn't been doing what I really wanted to do... [So] before I'd made a full recovery, I quit my job of over a decade and started the next chapter. It's a cliché, but it was one of the best decisions of my life.

Possibly the lightest iPhone 4 case around, providing essential protection while keeping controls accessible

Portfolio highlights

Some recent features that Michiel Cornelissen has worked on:

2011 *E 5.55 necklace*
2011 *4-4 iPhone case*
2010 *Pod à Porter and PadFoot*
2010 *30 Pencil Icosahedron and 36 Pencil Bowl*
2009 *Happy Bird*
2009 *A Bit Cross*
2007 *A Secret Project*
2006 *Care Code*

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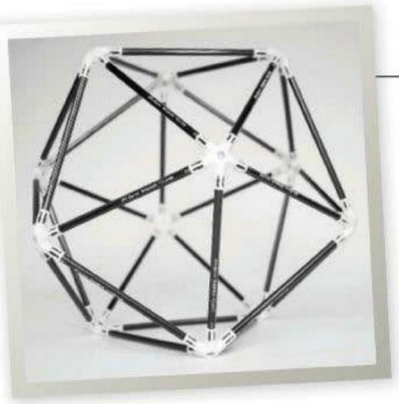

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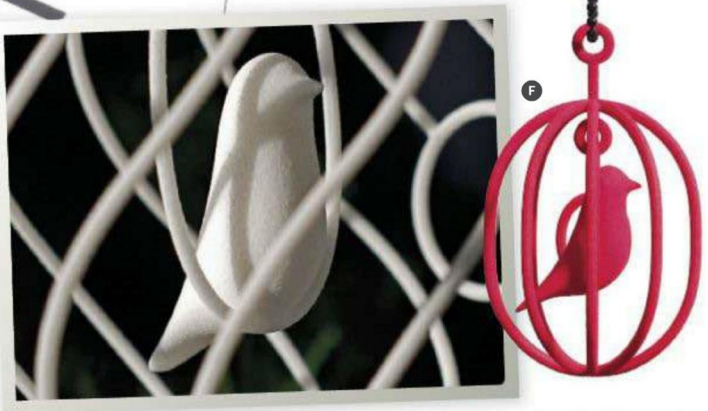

F

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Great inspirations

Michiel reveals the people and techniques that influence his work

"I've been influenced by many friends and colleagues. It's incredible how a small, sometimes even unrelated, remark from someone can suddenly put you on the right path towards the solution of a problem. As [for] inspirations, an area of design that I find very interesting at the moment is generative modelling, such as what people are doing with Grasshopper and processing. If I had to name one designer I admire, though, it's probably Achille Castiglioni... his work is so pure, full of joy and original, that I can only imagine him greatly enjoying every single working day."

> "It's better to work on one good idea than a hundred mediocre ones"

A Use this kit with 30 standard-sized hexagonal pencils and you can build an icosahedron-shaped object of about 15 inches in diameter

B "If you don't spend at least some time to think about how you want it to come across, it's very unlikely that it'll take off," Michiel says

C The Pod à Porter is where function meets fashion. Michiel is always working at the intersection of dreams and reality to achieve his goals

D PadFoot is an elegant iPad stand ranking among the best-selling products on Shapeways, giving Michiel a welcome royalty

E The E 5.55 necklace makes use of intricate geometries and a flexibility that is possible with 3D printing, for innovative and original results

F Michiel made this to test the limits of 3D printing. If you look closely, the bird is on a moving swing, which is printed inside the cage

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The best courses and freshest talent from around the globe...

Bachelor of Fine Arts in Digital Art and Animation – DigiPen Institute of Technology

In an industry that evolves every five years, a strong set of foundational skills is key in order to innovate and adapt: that's exactly what DigiPen offers

The DigiPen Institute of Technology is renowned for being the first university in the world to dedicate itself to computer and videogame development, offering in 1996, for the first time, a four-year Bachelor of Science degree in Real-Time Interactive Simulation.

Most people recognise the name for a different reason – this is the place where *Narbacular Drop* was first conceived, the student project that would eventually evolve into what is regarded one of the greatest games ever, *Portal*, and land its creators a job at Valve Software.

Located in Redmond, Washington, DigiPen is a place where computer programs, new technologies and artistic endeavours often seem indistinguishable from one another. It's an institute that understands employers in today's industry are looking for more than a working knowledge of Maya or just good drawing skills, but for employees that can display great artistry as well as understanding. As such, DigiPen doesn't just teach the mechanics of digital art, but a broad and integrated foundation of theory, practicality and skills that can be applied in any studio environment.

The BA of Fine Arts in Digital Animation is one such program. In taking the course students will develop extensive production experience in both 2D and 3D animation, gain strong visual storytelling, build familiarity with modern studio software and hardware. Most importantly, students learn how to maintain and continually enhance their drawing skills throughout their career.

Towards the end of the course, students are also assigned to teams in order to create a group-based animation production, from pre-production through to final rendering and postproduction (current examples are displayed on the page opposite). It's an experience designed to impart a solid foundation in professional work habits, quality control, production deadlines and team dynamics.

In an industry that can radically change every four to six years, adaptability is key, and that's exactly what DigiPen's curriculum is designed around. It's about the brass tacks of digital art – about delivering the fundamental knowledge anyone looking to work in interactive animation will require if they're to constantly face new challenges. It's a place that creates artists first, developers second, and it clearly works. This is the place that gave birth to *Portal*, after all.

A If they so wish, students have the chance to take part in an exchange over the summer, with students studying at campus sites in Spain and Singapore

B DigiPen also offers a Master Of Fine Arts in Digital Arts for proven artists interested in applying their knowledge to a new discipline

Cool quotes

"DigiPen is leading the academic community by providing a starting point for those wishing to pursue a career in the country's fastest growing entertainment industry. From the valedictorian of DigiPen's first graduating class to the seven graduates who produced 2007's Game of the Year, *Portal*, DigiPen has become a leading source for finding new and talented employees at Valve."

Doug Lombardi, *vice president of marketing, Valve Software*

"Given the visual quality of today's animations and videogames, a production artist must have a well developed creative process backed up by strong foundational art skills. There are no shortcuts, and I genuinely appreciate that our artists come prepared to put in the highest level of effort and professionalism to achieve the amazing results we see."

Raymond Yan, *senior vice president of DigiPen Institute of Technology, program director of the BA of Fine Arts in Digital Art and Animation. Also former head of the Art Production Group at Nintendo Software Technology*

> "DigiPen graduates go on to become tomorrow's leaders and innovators in a field that is continuously expanding to new heights"
>
> **Xin Li,** PhD, dean of faculty

DigiPen INSTITUTE OF TECHNOLOGY

Course details

Name Bachelor of Fine Arts in Digital Art and Animation
Length Four years
Website www.digipen.edu
Fees Non US Residents: Fewer than 16 credits – $908 per credit
16-22 credits – $14,080
23 or more credits – $14,080, $660 per added credit
US Citizens and Residents: Fewer than 16 credits – $825 per credit
16-22 credits – $12,800
23 or more credits – $12,800, $600 per added credit
Entry requirements Candidates must have a strong foundation in drawing and art concepts and be open to constructive feedback on their work. Candidates must provide an art portfolio of 15 to 20 samples of artwork and should have experience with drawing and other fine arts disciplines such as painting and sculpture. For more details as well as full application requirements, please visit **www.digipen.edu**.

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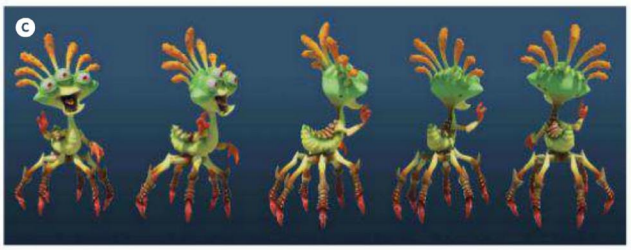
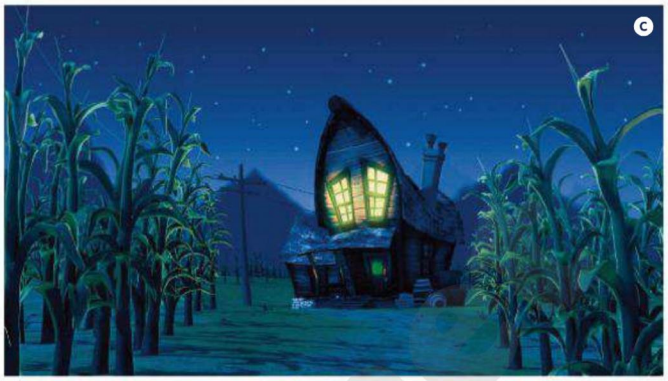
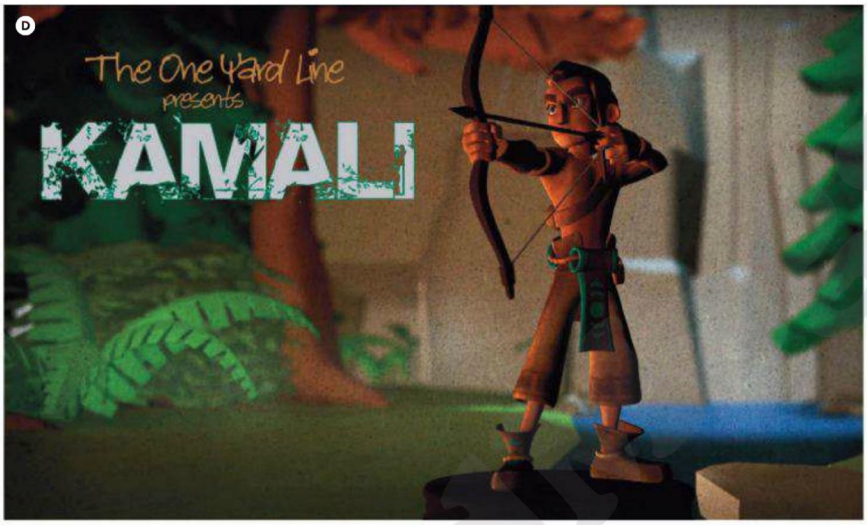
focus

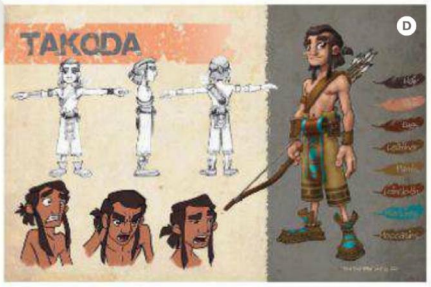
STUDENT GALLERY

We take a look at three short projects being developed by the groups of students working together at DigiPen, featuring tiny aliens, cute mimes and Native American huntsmen









C Concept Artist: Tara Muella
CG Artist: Marcos Gomez

Title: 'Cornfiscated'

"We [went] for a visual style that references pulp magazine/ sci-fi covers... It's a more cartoon-y version of sci-fi that worked for the comedic feel we were going for, but still kept the dark edge." Thomas Nichols, animator

D Concept Artist: Marissa Rawlings
CG Artists: Character model by Gary Sabo, textures by Jill Pond

Title: 'Kamali'

"By choosing a serious piece we challenged ourselves with something we've never done... [and] incorporated a more angular or blocky style..." Marissa Rawlings, artist

E Concept Artist: Noel Hanson
CG Artist: Elle Wyant and Noel Hanson

Title: 'Once Upon A Mime'

The creators of this short film have developed a cute mime character that has arguably gained even more character in his 3D rendition than his 2D. Excellent animation skills are required to achieve the same expressivity that mimes deliver in real life

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Vue 9 Frontier
Free full software worth $99

CGAxis models
Three free high-quality assets

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3D.SK resources
Reference images, textures, plus more

On the free disc

This issue's CD includes a full version of Vue 9 Frontier, models from CGAxis, an exclusive modo discount, video training and more

All the files you need to follow the 3D Artist workshops

Tutorial files

This issue Richard Yot has supplied a set of natural media brushes for his ArtRage and Photoshop Q&A on page 84. We've also got an accompanying asset for Josh Kitney's modo grass tutorial and Vue files from Conrad Allan. That's not forgetting video training from Pawel Podwojewski and Wayne Robson too.

Vue 9 Frontier

Free full copy of the software, worth $99*

Vue is a landscape-generation tool that gives 3D enthusiasts the opportunity to play with nature. This issue, e-on software and Cornucopia3D have very kindly provided every **3D Artist** reader with a copy of Vue 9 Frontier. This version of Vue is ideal for 3D enthusiasts, enabling artists to construct natural terrains with trees and vegetation, realistic water and mountains.

Users can import any static DAZ 3D Studio and Poser models, including Poser 8 and Poser Pro 2010 characters. It also provides high-fidelity skin rendering and uses advanced lighting models such as radiosity and HDRI.

Please note that render sizes are limited to HD resolution (1,920 x 1,080 maximum) although the limitation is removed with the RenderUp module. Object import is also limited to static (non-animated) DAZ Collada and Poser files, although this restriction is removed with the implementation of the 3D Import Module, sold separately.

Due to unavoidable disc-space limitations, this software is hosted on our website. For more information, please visit www.cornucopia3d.com or www.e-onsoftware.com

*Previously sold for $99 on www.cornucopia3d.com

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3D.SK resources

A collection of fantastic reference files for you to study

3D.SK (www.3d.sk) is a website packed full of handy resources for 3D artists and game developers. From photo references to textures and tuition, you're sure to find lots of great content on this site.

This issue 3D.SK has very kindly supplied a selection of files to help improve your projects. Free resources include artistic poses of males and females, high-quality head textures, videos of blinking and chewing, plus more.

Get $100 off the modo PACK kit

An exclusive discount code for 3D Artist readers, courtesy of Luxology

PACK, Luxology's Package Design and Construction Kit for modo, accelerates the design and visualisation of packages in modo. The kit helps package designers and CG artists circumvent some of the technical stumbling blocks involved in modelling and scene construction.

At the core of PACK is a collection of over 200 presets, images and assemblies which constitute a large library of packages and package components. These can be modified and assembled by the user, to both visualise existing packaging and create totally new package designs.

This issue Luxology has very kindly issued an exclusive 50% discount code for the PACK kit. Normally priced at £199, **3D Artist** readers can now purchase this fantastic set of resources for $99.

To apply the discount to your purchases, simply visit: **www.luxology.com/store/pack/index.aspx** and enter in the following promo code: modopack2012. This offer expires on 1 May 2012. To find out more information on modo and its related products, visit **www.luxology.com**.

Free CGAxis models

High-quality electricals for photoreal 3D projects

CGAxis.com is an online retailer of 3D resources that delivers high-quality, photorealistic models and textures in a range of file types for CG visualisations, animations, games and more.

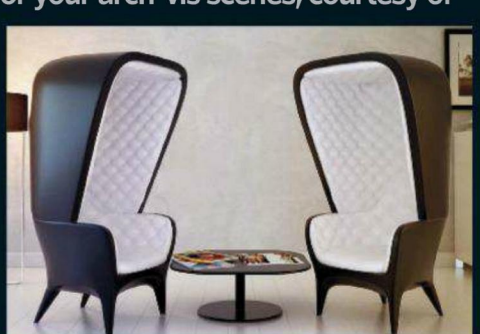
This issue we've got three models from its 'Electronics 2 collection' – part of its recent Volume 18 release – to give away. It includes two high-quality monitors, perfect for re-creating office interiors.

Free cosy armchair

A piece of furniture for your arch-vis scenes, courtesy of cgworkshop.org

CG Workshop is an online training provider for 3D artists. High-quality arch-vis models are also available to buy through the site.

This issue, the site's co-founder, Pawel Podwojewski, has very kindly given a free chair model to all **3D Artist** readers. Simply load up the cover disc to access it.



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Packed with 3D assets

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Simply insert the disc into the CD drive and the menu will start running. Click Accept on the terms and conditions to progress to the menu itself.

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Free copy of Vue 9 Frontier, worth $99!

E-on software and Cornucopia3D have very kindly provided every 3D Artist reader with a copy of Vue 9 Frontier. This version of Vue is ideal for 3D enthusiasts, enabling artists to construct natural terrains with trees and vegetation, realistic water, mountains and more.

3DArtist CD
Models, textures and resources for the 3D community
Free with issue thirty-nine
Full software worth $99
FREE VIDEO TUTORIALS
Vue 9 Frontier
Build custom terrains with this landscape-generation tool
Reference files from 3D.SK
Including photographs of humans and insects, high-resolution head textures and video files to study
High-quality 3D models
A selection of four assets, from monitors to furniture, to use in your arch-vis scenes
Plus: Exclusive modo discount code, gallery images & tutorial files

Tutorial files

This issue you have a set of natural media brushes from Richard Yot, Vue files from Conrad Allan and video training from Pawel Podwojewski and Wayne Robson. There's also assets for the modo Q&A by Josh Kitney.

High-quality resources

In addition to your free copy of Vue 9 Frontier, we've got a selection of free models to use in your images. modo users will also be pleased to know that there's also an exclusive 50% discount code for its PACK kit – a must-have for packaging designers worldwide.

On the Disc

Exclusive modo discount code

3D Artist readers can look forward to getting 50% off Luxology's PACK kit for modo. It's normally priced at $199, so our exclusive code ensures you only have to pay $99 for this fantastic set of resources. Offer expires 1 May 2012.

3DArtistonline.com

The fun doesn't stop with the magazine! There's the website and gallery for uploading your images and commenting on those of other 3D artists, and there's the forum for all your 3D-related questions, comments, discussions and problems. If you have suggestions for the magazine or just want to comment on each issue, then head over there and say your piece. Remember to sign up and register, then click for the forum to remember you for the next visit and you can post away.

Any disc problems

If the menu doesn't run or your disc is faulty then we will replace it free of charge. Just drop an email listing the problem to 3daxtrahelp@imagine-publishing.co.uk and it will be sorted out promptly. Please don't send mail about the disc to the editorial team, as that is the wrong department for dealing with your problem. If you are having problems getting the best out of individual programs or extras provided, then please contact the relevant software companies.

www.3dartistonline.com

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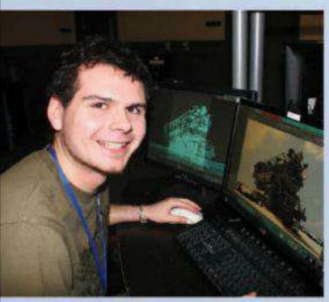
HOW MUCH DID YOU LEARN LAST WEEK?



DANIEL CHAVEZ

PRIOR TRAINING: *NONE*
TIME IN SCHOOL: 3 WEEKS
MODELING TIME: 1 WEEK

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